# THE physical therapy REVIEW


Opening Address: Second Congress,
World Confederation for Physical Therapy — ELSON

Health, a Strong Force for World Understanding:
The Role of the Physical Therapist — RUSK

Strengthening the Quadriceps:
Progressively Prolonged Isometric Tension Method — LAWRENCE

Physical Therapy in a Neuropsychiatric Hospital — KINNARD and RIEMER

An Exercise Program for the Brain-Injured — TORP

Chapter Directory



**Volume 36 - Number 10** **October 1956**

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AMERICAN PHYSICAL THERAPY ASSOCIATION

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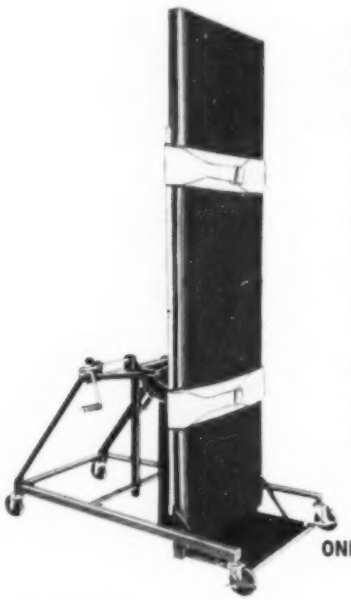

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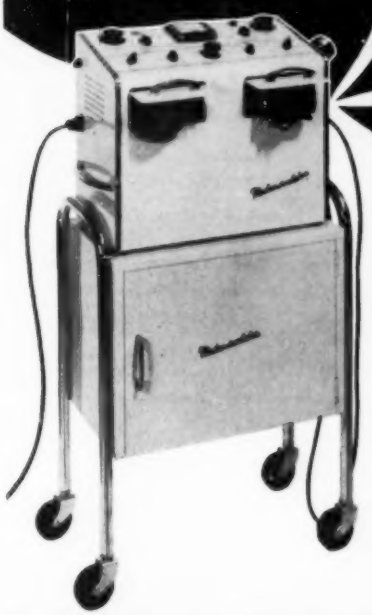

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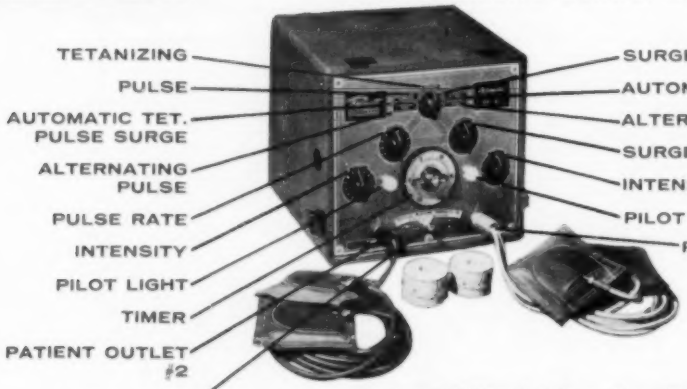


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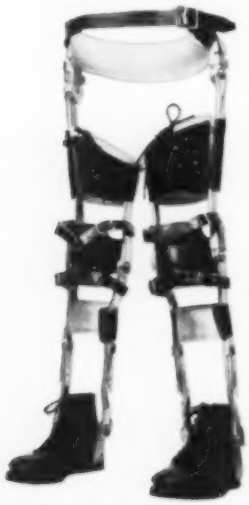

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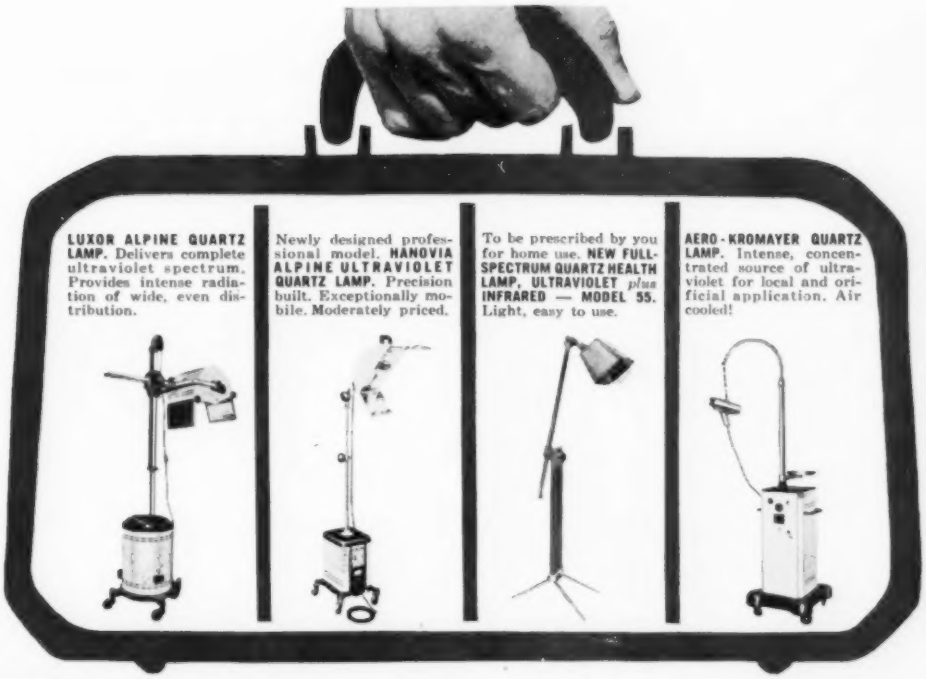
Oct. 9 - 12 American Dietetic Association, 39th Annual Convention, Milwaukee

Oct. 26 - 29 American Heart Association, Annual Scientific Sessions, Cincinnati

Nov. 7 - 9 American Institute of Electrical Engineers, the Institute of Radio Engineers and the Instrument Society of America, Ninth Annual Conference on Electrical Techniques in Medicine and Biology, New York

Nov. 12 - 16 American Public Health Association, 84th Annual Convention, Atlantic City

Nov. 27 - 30 American Medical Association, Clinical Interim Session, Seattle



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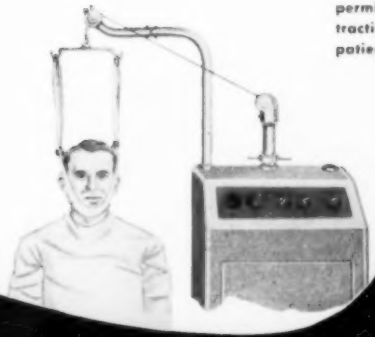

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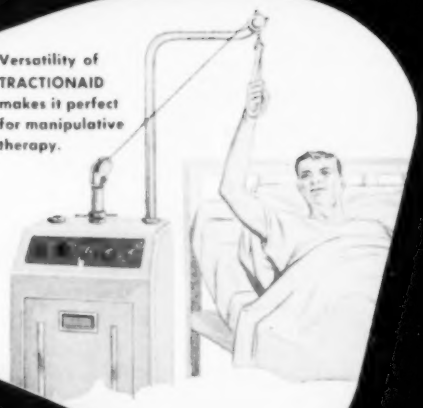

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Sources of Financial Assistance for Physical Therapy Student — 1956.

Poster: Join Ranks in a Proud Profession—Career poster for bulletin boards.

Career Facts—A brief on needs and opportunities.

Physical Therapy Record—A news tabloid with pictures depicting work of physical therapy for lay groups.

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Code of Ethics of the American Physical Therapy Association.

Personnel Policies for Physical Therapists.

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Approved Schools and Courses of Physical Therapy 1928-1954.

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Evaluation of Strength and Motor Development in Infants — Zausmer (20¢)

Physiology of the Heart and Circulation and Its Clinical Application in Physical Medicine — a bound edition of papers by nine authors with an introduction by Harry D. Bouman, M.D., Coordinator. (50¢)

Physical Therapy Program for the Upper Extremity Amputee — Jampol (10¢)

Physical Therapy in a Small Hospital — Stamm (15¢)

## VISUAL AIDS

The following visual aids are available on loan to members and chapters upon request. They should be requested one month in advance of the date to be shown and return shipping costs must be paid by the borrower.

Peripheral Nerve Injuries: Upper Extremity — A set of 17 black and white 3¼ by 4 inch slides illustrating nerve injuries of the upper extremity.

### Recruitment

Within Your Hands — Black and white 17½ minute sound picture depiciting the education and opportunities for the profession of physical therapy. Each chapter (and district) also has a copy of this film. A special 14½ minute version for telecasting is available from the National Office.

Physical Therapy, A Career of Science and Service — A color filmstrip to interpret physical therapy to high school students and lay groups. Each chapter (and district) has a copy of this and additional copies may be purchased from the National Office at $4.50 per print.

### Professional

*Slides*

Underwater Exercise — A set of 26 Kodachrome slides made at the Orthopaedic Hospital in Los Angeles describing equipment and technics of underwater exercise.

## Special Issues of the Review

| | |
|---|---|
| Polio Issue (July 1952) | (25¢) |
| Polio Issue (July 1953) | (25¢) |
| Cerebral Palsy Issue (February 1952) | (25¢) |
| Rehabilitation Issues | |
| Functional Issue (November 1949) | (25¢) |
| Rehabilitation Issue (November 1955) | (50¢) |

### Abstracts Reprinted

"Haltung," an Abstract from Body Posture by Magnus, and "Head Posture and Muscle Tone," Clinical Observations by A. Simons, abstracted by Signe Brunnstrom, have been reprinted in one pamphlet.

Reprints can be ordered from the American Physical Therapy Association, 1790 Broadway, New York 19, New York. The cost of the pamphlet containing both abstracts is 50¢ (in quantities of 10 or more, 25¢).

**All requests should be addressed to**

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## WE ARE IN THE WRONG RACKET

The Wall Street Journal (Sept. 5, 1956) reports on the dance studio business, from the Fox Trot through the Mambo, Cha-Cha-Cha, and the latest Paso Doble.

Americans pay $150 million a year in merely instructions in dancing. This does not include the fiddler. The Arthur Murray take alone will probably approach 60 million bucks this year. This is purchased by people who could learn the same thing in anything from a passable to excellent way, for free, from willing and probably delightful friends (do I have any offers before I hand Messrs. Murray and Astaire a couple of hundred bucks?)

This dance lesson bill is approximately 20% more than the total which our entire population puts out for eye glasses in the same year. It is several times the total paid out by hospitals, physicians and allied health institutions and persons each year for x-ray and physical medicine equipment combined. I estimate it is more than double the total collected in the entire Nation for physical therapy treatment this year.

Probably what we need is more fun for your patients—say a bit of music (Sachmo or similar) coupled with some dancing by some of our quite comely therapists—and a song or two by their male counterparts, at least some of whom through visits to my hotel suite at conventions established themselves as Sinatras of some degree. This is sound—but not ultra.

Well, neither you nor I went into this therapeutic science with the idea that we were going to own a stable of thoroughbreds. Maybe we are just plain stupid, but I suspect that most therapists were born with the missionary spirit, a genuine love for others, and with a cross of gold in hand—if not with a silver spoon in the mouth. We may be very short of therapists on earth but there should be an abundance in heaven.

———o———

Speaking now of sound—and I do mean ultra. The slide rule guys that clutter our research and development department have come up with a dilly, —a new adjustable 5-position Ultrasonic transducer. This makes it simple to apply Ultrasonic energy to any part of the patient's body without awkwardness and without muscle strain and fatigue to the therapist. Of course, this makes every Ultrasonic machine obsolete including the 15,000 bearing my name and it is our fervent hope here that you will immediately junk everything you have and rush orders by air, wire, wireless and mule train. Short of this, if you want to know more about this latest gasp of gadgets or otherwise about Ultrasonics, one of Uncle Sam's 2¢ communiques to me will assure you of getting the business.

Cordially to all and affectionately to some,

Cecil Birtcher

C. J. Birtcher, President
The Birtcher Corporation

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# The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Vol. 36 October 1956 Number 10

# Opening Address

## Second Congress, World Confederation for Physical Therapy

Mildred Elson, President

The World Confederation for Physical Therapy is deeply honored to be the guest of the American Physical Therapy Association at this, its Second Congress. Over 2,000 physical therapists from (34) different countries will be attending this Congress. This is the broadest representation I am told ever gathered at an international meeting in New York City. I know that each and every physical therapist present will carry back to his home or adopted country new ideas, new enthusiasm, and a determination to work for greater service and for more physical therapists to care for the many patients who today must go untreated. One of the greatest challenges to the World Confederation is to increase the supply of qualified physical therapists not only in our own countries but to help staff training programs in those countries where none exist. At the same time in those countries the organization of the physical therapists will be actively encouraged. By the time of our next Congress, three years from now, we will hope to have many more new societies ready for membership. There are three to be acted upon at this meeting, Belgium, Holland and Israel. Applications have just been received from Colombia and Chile.

The number of physical therapists in the world is not great, about 38,000. A look at the ratio of physical therapists to population is interesting and revealing, and possibly a little more understandable.

| | | |
|---|---|---|
| Australia | 1,100 | 1 to every 8,000 |
| Canada | 800 | 1 to every 18,000 |
| Denmark | 2,200 | 1 to " 2,200 |
| Finland | 175 | 1 to " 25,000 |
| France | 3,500 | 1 to " 12,000 |
| Great Britain | 16,000 | 1 to " 6,000 |
| Norway | 9,000 | 1 to " 3,700 |
| South Africa | 350 | 1 to " 40,000 |
| Sweden | 2,700 | 1 to " 2,600 |
| U.S.A. | 7,000 | 1 to " 22,000 |
| West Germany | 1,800 | 1 to " 28,000 |

These figures are approximate but they do reveal a true picture of ratios. It would appear that in every one of the member countries of the World Confederation for Physical Therapy there is a startling and serious need for more physical therapists. A possible exception is Denmark, but they say "no." When we add to this the population of the rest of the world, the needs for our services are astronomical and grave. Fortunately for us in these growth countries the demand is not yet great since there are also few hospitals. There is only a beginning awareness of the social and economic importance of rehabilitation services. We cannot, however, be complacent because we know that in many of these growth countries a real effort is being directed toward meeting the basic health needs of the people and the demand for physical therapy will automatically follow.

Last summer a study of physical therapy service in Austria was undertaken by the International Society for the Welfare of Cripples as a service to the World Confederation for Physical Therapy. The surveyor, Dr. Isabelle Taylor

Read at the Second Congress of the World Confederation for Physical Therapy, held in New York, June, 1956. This paper will appear in the published *Proceedings*.

undertook the study on a voluntary basis. Austria is a country long famed for its medical leadership, but which, due to circumstances beyond its control, lost much of that leadership. The report which tells of the struggles of the physical therapy profession for rebirth, is available from the International Society. It is hoped that similar comprehensive surveys may be made in other countries to give us direction as to the amount and kind of technical assistance needed to establish training and service.

As you have heard, in January of this year the World Confederation for Physical Therapy was awarded official status with World Health Organization. This places on us a real responsibility to give the World Health Organization technical assistance through consultation and service, by providing personnel for demonstration programs in rehabilitation, and to give continuing assistance to those already started. A similar cooperative relationship exists with the Rehabilitation Unit of the Social and Economic Commission of the United Nations. It is recognized by these agencies that any demonstration program should have the elements of an on-going program which may be carried on by the country itself. This means training programs in physical therapy as well as in other disciplines.

During this Congress at the Seminar on Education and at the meetings of the Executive Committee and the Delegates there will be discussions and recommendations for the preparation of guidance material for such educational programs. This is not as simple as it sounds. In many of these countries the level of general education is low, posing a problem in selection of students, as well as in determining the content and length of a physical therapy training program. Very few of the nationals in these countries would meet the requirements of our well advanced programs except as special students. In addition, service professions such as physical therapy and nursing do not have the same social status as in our countries, which further complicates selection and recruitment.

Nevertheless, a start has to be made if there are to be educated hands to do the work which is crying out to be done. One such training program was started about a year ago in Guatemala under the aegis of U. N. by a physical therapist from Finland. Physical therapists from other member countries have and are assisting in the establishment of educational programs in Israel, Beirut, Cairo, Bombay, Venezuela and Kenya to name some. More programs are being planned and we must be prepared to give realistic help.

The World Confederation for Physical Therapy is frequently consulted about departmental planning and equipment. Here is another unmet need. Guidance material must be prepared and, again, it must be realistic. We are sympathetic to the desires of everyone to have the best and newest of equipment and as much as is needed for patient care, *but* its procurement must be kept in balance with the number and training of personnel to use it.

In addition to the two agencies mentioned there are others in the United Nations such as UNICEF and ILO with whom we must maintain working relationships. All international voluntary agencies and professional organizations concerned with the handicapped must be mutually helpful and understanding of each other if common goals are to be attained. A Conference of World Organizations Interested in the Handicapped, a group of about 25 organizations, has been formed to provide a mechanism for mutual aid and understanding. The Conference which is held about every eighteen months alternates between New York and Geneva. Interim meetings are held in New York of those agencies having headquarters or a representative here. The United Nations and its specialized agencies send representatives to the meetings to tell of their programs and to seek support and advice of the non-governmental organizations in carrying them out. Thus we see within our own sphere of interest at the international level a real working together, a sharing, a neighborliness.

I recently read an article on what makes a good neighbor. The word, "neighbor," it said, was produced by putting together two old Anglo-Saxon words meaning nigh and dweller. A neighbor is a "nigh-dweller." Throughout the centuries the number of everyone's "nigh-dwellers" has increased, but to many the word, neighbor, still connotes those living close by, as on the same block or street. It is, however, also applied to countries. On this continent we speak often and warmly about our good neighbor to the North, Canada; or our good neighbors to the South, Mexico and the other Central and South American countries. We, therefore, are not bound in our thinking of a neighbor as the family next door. In this age of air travel and with our changing concept of what constitutes a neighbor, we have greatly increased and broadened our neighborly activities.

Although at this Congress we are from many different nations, speak many different languages, I think of us as physical therapists and neighbors with a universal language, not as

French, Danish, Finnish, Australian and so on. In this coming week we are going to enjoy a closer relationship which will make it possible for us to borrow more easily from one another, to share our knowledge and our skills, that a patient somewhere, sometime, will benefit. This neighborly exchange cannot help but lead to a greater understanding and respect for one another.

During this week you will be hearing from many of your colleagues in physical therapy, from eminent physicians, scientists and dedicated laymen. They will be presenting to you papers reflecting their knowledge and philosophy, their research and observations, their methods which have proved to be successful enough to warrant sharing. There are 69 fine exhibits for you to view and a film theatre where there will be a daily schedule of scientific films from Sweden, Denmark, France, West Germany, Great Britain and the U.S.A.

An editorial in the May issue of the Physical Therapy Review speaks of "shop talk." It would be a rare happening if when two or more physical therapists get together, that the conversation did not get around to their work in one way or another. Physical therapists are so interested in the welfare of their patients that they literally bubble over with enthusiasm. They want to tell one another about a particularly rewarding or successful experience or try to get help for a patient who seems not to be improving as he should. With two thousand physical therapists here, the tremendous amount of physical therapy talk could easily be of greater significance, of greater value, than all of the formal presentations. Their great contribution will be the stimulus for the shop talk, which will last far into the night; so I say, talk to your "nighdwellers" and if upon your return home, you talk to even just five more, the knowledge and understanding you have gained here will then literally circle the globe.

It is now my privilege to light the Congress Symbol and to repeat the verse written by our First Vice-President, Miss Griffin, for the First Congress:

> "Let the spirit of the Congress be a willingness to serve and a sense of just enjoyment, for happiness and health are next of kin, and, from true faith in a Creator, comes willingness to help a neighbor, content of mind and peace to men."

## APTA Recruitment Will Be Accelerated During 1956-57

During the summer months we formulated plans for a greatly accelerated recruitment program during the 1956-57 school year. With the stimulus of a new brochure, folders for special groups, poster, TV slides, flipsheets for speakers, additional "how-to" instructions, individual guidance and materials for special recruitment projects, it is confidently anticipated that a vigorous and productive recruitment drive will be initiated in all chapters and districts early this fall. We will start our recruitment program with our current materials and as they are published samples of the new literature will be sent to the chapter presidents, district chairmen, and recruitment chairmen for distribution to members. [*We suggest that samples of recruitment materials and easy-to-follow outlines for recruitment projects be posted in an "eye-catching" spot during each chapter and district meeting. Aided by these materials every member can actively participate in our fall recruitment drive.*]

To supplement our members' local recruitment projects, the National Office will continue its drive for magazine, newspaper, radio, TV, and other publicity, and continue to enlist the cooperation of large consumer agencies, national and regional church groups, youth service organizations, and health agencies. This national effort will not only provide a good public relations background on physical therapy but will make more authoritative our members' appeals for community cooperation in their local recruitment activities.

A special appeal for cooperation in our 1956-57 recruitment program is made to those members who are widely separated geographically from other members and whose areas contain few towns and few schools. An analysis of recruitment efforts in these sparsely settled areas during the past year proved that even the simplest recruitment technics are usually highly productive; consequently special guidance through correspondence will be furnished these members.

Every member is urged to work through his or her chapter or district and when necessary write to the National Office for help in selecting and organizing productive local projects and when special recruitment materials are needed.

# *Health, a Strong Force for World Understanding: The Role of the Physical Therapist*

Howard A. Rusk, M.D.

One of the distinguishing features of international relations in the past few decades is our growing recognition throughout the world that the security and welfare of one part of the world is dependent upon the security and welfare of each other part of the world.

Some of this recognition has been forced upon us by the technological advances of the Twentieth Century which have created a shrinking world in terms of communication, transportation, trade, and devastating effects of modern weapons of warfare. Mankind through the ages has been forced, for practical purposes to develop social concepts to fit the realities of his changing environment.

I, for one, and I am sure this concept is shared by the great majority of people throughout the world, regardless of their race, relations, nationalities or professions, believe this growing recognition of mutual dependence has not resulted from practical necessity alone, but that it also represents our ability as our society matures to give fuller expression to a feeling that is as old as mankind itself—the desire to share and to help their neighbors.

This concept has long been practiced by religious and private organizations, but it has been only within recent years that technical assistance programs, in which one portion of the world aids another, have been conducted by government groups. The first really global recognition of this multilateral responsibility came with the establishment of the United Nations and its specialized agencies which have placed heavy emphasis on technical assistance. In addition to these multilateral programs which will be discussed more fully later during this Congress, various governments throughout the world have initiated bilateral programs for technical assistance outside of the framework of the United Nations.

Even the greatly increased attention to such activities through the multilateral programs of the United Nations and the bilateral programs of individual nations have not, however, filled the need which most of us feel within our minds and our hearts for increasing international cooperative activities. Consequently within the past decade there has been a great surge forward of international communication and sharing of knowledge among professions. There is no better example of such desire than this Congress of the World Confederation for Physical Therapy. This organization is motivated not only by the professional aspects of giving, receiving and sharing knowledge, but the recognition that the chain of international understanding is only as strong as its various links.

We recognize that in today's world, international diplomacy and the development of international understanding cannot be solely the responsibilities of the diplomat, but they are responsibilities which must be assumed by all of us in our roles as professional persons and individual citizens.

It has long seemed to me that in the field of rehabilitation, we have a uniquely effective area of service and of responsibility for working toward international understanding. Health, including rehabilitation services for the handicapped, is fundamental to the prime democratic concept of equal opportunity for all. A world in which good health is enjoyed by but a few cannot be a politically stable world. How can the man who is doubled up by pain and disability stand up and fight militantly for the principles of democracy and freedom? Unless he can work and produce, how can he enjoy the fruits of his own labor and become a customer for the goods which all of the world wants to sell him. Unless he can produce and earn and then buy from the rest of the world, how can his standards of living be increased?

Professor and Chairman, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York.

Read at the Second Congress of the World Confederation for Physical Therapy, held in New York, June, 1956. This paper will appear in the published *Proceedings*.

Good health is fundamental to economic self-sufficiency. Dr. Charles W. Mayo summed up this relationship aptly when he said with great simplicity, "1. Sickness makes people poor. 2. Poverty makes people sick."

Today throughout the world we have scores upon scores of examples of how this chain of "Sickness causes poverty which in turn causes sickness, which in turn causes poverty, which in turn causes sickness . . ." has been broken by relatively small amounts of money wisely invested in health and agriculture projects. Following malaria control programs, industrial absenteeism in the Philippines dropped from 33 per cent per day to 4 per cent per day. The average gross income of families in certain districts of Greece doubled as the areas they cultivated increased 50 per cent. Rice production in one area of Bengal increased 543 pounds per acre.

These and similar activities in the control of infectious parasitic and nutritional diseases, improved sanitation, maternal and child welfare programs and other modern health practices have had a social, political and moral impact that is equally as significant as their direct economic returns. They are tangible programs which can be seen and understood by the vast numbers of persons whose day-to-day lives they affect. They are welcomed by the nations in which they are undertaken, for such programs are initiated only at the request of host countries and they involve cooperative joint planning and administration.

As the result of the long years of experience of our medical missionaries and of voluntary organizations, we have more "know-how" in the conduct of international health projects than in some other forms of technical assistance and are able to administer such projects more effectively.

Vast returns can be received on small investments. Since the technical cooperation health programs of the United States, popularly known as "Point IV" projects, were begun fourteen years ago, they have cost our citizens less than a penny a month.

Sharp as these economic, social, political and moral values are in the over-all field of international health activities, they are even more striking in the field of rehabilitation of the physically handicapped.

In the developed parts of the world we have seen a remarkable growth of interest in rehabilitation in the last decade. This interest has not been prompted by humanitarian motives alone. It has resulted from the growing incidence of physical disability resulting from prolongation of the life span, increased public assistance costs because of disability, and our need for manpower in our expanding economy.

But what lies behind the interests of Indonesia, Korea, the Philippines, Mexico, India, Burma and Thailand in the provision of rehabilitation services for their handicapped? It is not the need for manpower, for these nations have far more manpower than they can profitably utilize in their present stage of industrial development. It is not to reduce public assistance costs, for few of these nations have any social schemes whereby the disabled become a responsibility of the state. It is not to reduce demands for medical care, hospitalization and social services, for the chronically ill and the disabled in most of these nations are wards of their families rather than of the state.

The real reason is that many of these nations, particularly those of the Africa-Asia area, have, after years of colonization, recently achieved the long-sought dream of political independence. Now they are desperately looking for ways of proving to the world, and more importantly to themselves, that they have the political and social maturity to justify their political independence.

In the past decade, international activities in health and in rehabilitation have been an almost exclusive domain of the free nations of the Western World. Within recent months the Soviet Union has announced its intention of undertaking bilateral technical assistance activities, particularly among those nations of Africa and Asia which have declared themselves to be politically neutral, and promise upon promise of such assistance has been given by visiting Soviet officials.

It is reported that last year Russia graduated 27,000 physicians from their medical schools and 20,000 the previous year. At the present time, we are graduating slightly more than 7,000 per year in the United States. It is granted that the level of education of these physicians is far below that of our physicians, but even so, the health services they are providing to the country are so superior to those ever before available to the people, it is considered a miracle.

It has also been reported that at the present time there are more doctors than can be readily absorbed in the health services of Russia and the physicians are being used for the kind of job that we would ordinarily assign to nurses and

technicians. If the production continues and the excess increases, it is rather obvious what the physicians will do. They will carry the skills they have learned along with the concepts of communism to the backward parts of the world. We must meet this challenge and we can, for our physicians are better trained. By using total professional personnel, therapists, sanitary engineers, public health administrators and educators, we can do a better job. But time is running out.

Here is one example of what could be done. The Veterans Administration here in the United States has, since 1946, conducted an extensive artificial-limb research program through nonprofit contracts with universities. Some of the scientific and technical advances made in prosthetics, as a result of this substantial research investment, will be demonstrated during the Congress.

Just as we, in the United States, are interested in sharing the technical advances in nuclear energy for peaceful purposes with the rest of the world, we could make a significant contribution to the effective understanding of the ideals of democracy and the value we place on human worth and dignity, if through a governmental appropriation of one or two million dollars a year, we could share our advances in artificial limbs with the world. Through demonstration centers, consultations, mobile clinics and the training of foreign personnel in the United States, a magnificent program could be established. With the sum of $1,000,000 a year for two years, both the administrative and professional overhead cost for such a project could be met; highly qualified American consultants could visit all parts of the world and survey what is available and what is needed; four completely equipped mobile prosthetic shops, each staffed by a qualified American prosthetic technician and physical therapist, could be sent to Southeast Asia, the Near East, North Africa and South America to spend four to eight weeks in a given community rendering direct patient services in fitting prosthetics and training wearers in their use; permanent demonstration prosthetic shops and training centers could be established in key parts of the world; and the components to provide modern artificial limbs could be made available to over 40,000 amputees; over 100 trainees could be brought to the United States for training in prosthetics; and all of the available technical literature and visual aids related to prosthetics here in the United States could be translated and published in various languages for international distribution.

These prosthetic trainees would then join the 400 health workers receiving advanced training in the United States under the auspices of the International Cooperation Administration. They, and hundreds of others trained under the auspices of private foundations, their own governments and their own resources, are permanent ambassadors of our democratic ideals. Such persons make particularly effective proponents for democracy because, as professional people, they work intimately with their handicapped patients and have their confidence and trust.

Somewhere within the spectrum ranging from direct relief to long-range economic projects, there is a need for significant, tangible short-range projects that can be seen and easily understood. The Russians produced such a project when they paved the main street of Kabul in Afghanistan. Our United States foreign aid projects there have been of economic importance, but their impact on the daily lives of the people will not be felt for many years. In contrast, several times each day the residents of Kabul have reason to be grateful to Russia.

This is the kind of imaginative, constructive project which can be easily seen and understood. There are many hundreds and thousands of disabled persons throughout the world, each of whom could also become a living, dynamic example of democracy. To illustrate their potential contributions, I should like to tell you the story of a little Bolivian boy, age 10 years. He was born without arms and legs but with four little sensitive fingers coming out of each shoulder and two normal feet coming from the hip joints, but which had no bony connection. When he was a year old, he was abandoned by his father, who then deserted the family and has not been heard of since. The boy spent the next eight years of his life in an American mission in La Paz, where he had love and kindness but could not walk. To get from one place to another, he rolled like a little ball. He was seen there by a young physician from the United States, who called me and said he had met this little boy, who was exceedingly bright and who, if he had a chance, he felt, could be a great force in the world. Pictures and case reports were sent and by coincidence seen by the secretary of one of our distinguished citizens. She made possible his trip to the United States.

Two weeks before he arrived, I had the Vice-President of Bolivia and the Bolivian Ambassador to the United Nations to luncheon. They

knew all about Juanito and were excited about his coming. In the middle of the meal, I said to them, "You know, if we bring Juan here it is going to cost you a very large fee."

In consternation, they said, "How much?" I said, "The fee is this. First, that when he returns, you must promise him the best education your country affords; and second, if we can demonstrate in the most severely disabled child you will ever see what can be done, you will establish a national rehabilitation program in Bolivia."

Without hesitation, the Vice-President said, "You take the boy; we pay the fee."

When he arrived, he spoke no English. Within a month, he had a vocabulary of more than 300 words. Special prostheses were designed and he now is walking. He has "grown" more than twice his height. He is doing well in school and one day soon will be ready to go back and take his place in his own country.

Several months after he was in the United States, the story was published in a national magazine. A few weeks later, a letter came to the editors which read as follows:

> "Congratulations on a brilliant piece of reporting. Am referring to your (February 21) on Juanito Yepez, the congenital quadruple amputee from Bolivia. . . . For those of us who are in and out of Central and South America we found your article on Juanito gained us more friends (and respect) than all the millions our government is pouring into these countries. We noted no sudden pro U.S.A. feeling in Brazil as a result of the 75 million dollar donation (given Brazil by the United States), but we were pleasantly surprised with the many compliments for what the U.S.A. is doing for Juanito. I do not know what your circulation is in Latin America but can tell you the peons in the backwoods knew all about Juanito within 24 hours after the issue was on the streets . . ."
>
> E. E. BUTLER, *Master*
>
> S/T Adrias
> Tampico, Mexico

The world needs people like Juanito Yepez who stand as symbols of the emphasis which the free world places upon human worth and the dignity of every individual, regardless of the color of his skin, the language which he speaks, the God whom he worships, and the physical limitations of the body which houses his spirit.

As leaders in the profession of physical therapy throughout the world, you bear a distinct responsibility for the Juanito Yepezes through the world, for your skills, devotion and service are a foundation in the rehabilitation process. Having had the opportunity and privilege of working with you and seeing you accept this responsibility, professionally and spiritually, not only here in my own country but in many nations throughout the world, I share with you the statement that "Helping to rehabilitate a politically crippled world as well as to rehabilitate a physically crippled child, is not only your responsibility, but your privilege."

---

## Are You a Good American Citizen?

Take an active part in directing the future of your country, your state, your town, your institution and your life. Vote for the men of your choice in the November elections.

# *Strengthening the Quadriceps:*
## *Progressively Prolonged Isometric Tension Method*

Mary S. Lawrence, Capt., AMSC

### Introductory Case Report

April 21, 1954, Corporal C. was admitted to the U. S. Army Hospital, Fort Devens, Massachusetts, for disposition with regard to an old injury of the right knee.

While in paratrooop training in March 1951 this soldier sustained a tear of the lateral collateral and anterior cruciate ligaments of the right knee. He received conservative treatment at another Army hospital, and in October 1951 surgical removal of the medial semilunar cartilage was performed.

After surgery, repeated aspirations were required in an effort to control swelling about the knee and his qualification record was changed to reflect a subnormal physical profile (evaluation) in regard to the lower extremities.

During the six months prior to his admission to the hospital at Fort Devens, this soldier had increased symptoms of the right knee joint with aching, instability, and a limp. Further, there was a history of recurrent dislocation of the right patella since arthrotomy.

On admission, physical examination of the right knee revealed mobility of the lateral collateral and anterior cruciate ligaments and a hypermobile patella. There was a 15° limitation of active extension of the knee but passive extension was complete. The patient was able to actively flex the knee to 45°. Voluntarily the patient could "snap" the biceps femoris tendon over the head of the fibula by contracting this muscle when the knee was in flexion. The "snapping" also occurred while the patient was walking.

On May 12, a tenodesis of the biceps femoris tendon was performed by Major Francis N. Brill, Chief of the Orthopedic and Physical Therapy Sections. Approximately one third of the biceps femoris tendon was removed from its anomalous insertion on the lateral aspect of the tibia. The tendon was then brought superiorly and passed through drill holes in the lateral condyle of the femur at the insertion of the lateral collateral ligament, and was sutured upon itself. After closure of the wound a cast was applied with the knee in 30° of flexion.

Sutures were removed on May 24, and a posterior splint with 45° of knee flexion was applied. Protected active motion of the right knee was begun June 1, with emphasis on reeducation of the biceps femoris, exercise of the quadriceps, and gradual extension of the knee joint. On June 7, the patient began graduated weight bearing.

Orthopedic examination on June 17, revealed that the patient's gait was greatly improved. However, the patient complained of localized pain in the area of the anterior superior spine of the tibia and a "clicking" sensation while walking. When positioned in slight flexion, the knee was unstable and there was marked atrophy of the quadriceps.

On June 18, a second arthrotomy of the right knee was performed. Through a medial incision small spurs on the medial femoral condyle and the tibial spine were excised, the patellar cartilage was débrided, and the patellar tendon was transplanted according to the method of Hauser. The tibial tubercle with the attached patellar tendon was removed and transplanted medially and slightly distally into a prepared bed in the tibia. The transplant was fixed by a metallic screw after which the periosteum was brought over the top of the tibial tubercle and the medial capsule was embrocated. The wound was closed; a pressure dressing and aluminum posterior leg splint were applied.

On July 7, sutures were removed and the leg was placed in a balanced sling for periodic active-assistive knee motion. The patient was instructed to perform quadriceps setting exercises each hour during the day.

On July 12, there was active extension of the right knee to 18° and flexion to 90°. The pa-

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tient was allowed to use a wheel chair for 1 hour daily and began treatment in the physical therapy clinic. Active exercises of the knee including "intensive" quadriceps exercise were prescribed.

*No weight was to be applied as resistance to knee extension until 6 weeks following surgery.* Although only 23 postoperative days had passed, it seemed imperative to the ultimate function of the knee to prevent greater deterioration of the quadriceps muscle and to begin some active regime for the redevelopment of strength without delay. For this reason a method based on progressively prolonged isometric tension was developed.

## INTRODUCTION TO METHOD

Maintenance or restoration of adequate muscle strength is of primary concern in the rehabilitation of patients with motor dysfunction as a sequel to any of the debilitating types of injury and disease. The heavy resistance exercise program advanced by DeLorme a decade ago, later modified by DeLorme and Watkins as progressive resistance exercise, required that muscles perform at maximum output levels in overcoming a load. This method, now in general use, has been amply confirmed by investigative work and has provided a reliable clinical method for the restoration of muscle strength.

DeLorme has stated that the total number of repetitions performed in any one exercise period must be adjusted to the capacity of the individual patient. The recommended use of 3 bouts of exercise in which 10 repetitions of the prescribed movement are performed progressively with 50, 75 and 100 per cent of the "10 Repetition Maximum" (10 RM), does not preclude the possibility of the effectiveness of other variations of manipulation of the exercise load. The importance, however, of lifting the heaviest weight, the 10 RM, for 10 repetitions during the exercise period is stressed.

Modifications of the generally recommended method of DeLorme have been advanced by other workers. The Oxford technic of heavy resistive exercise used by Zinovieff requires a regressive load performed in successive bouts as an attempt to adjust the load to the normal fatigue curve of the muscles being exercised.

McGovern and Luscombe have suggested a modification of progressive resistance exercise in which the period of "warm-up" exercise prior to the performance of overload exercise, or 10 RM, is reduced as a time-saving device. In their hands this method yielded results comparable to those achieved by the generally recommended DeLorme technic.

These workers have also suggested a method of progressive resistance exercise for use in patients with poliomyelitis which takes cognizance of the fatigue factor evident to all who have worked with exercise programs for the poliomyelitic patient. In this modification the work-load is inverted. After a brief period of unresisted movement, maximum exercise is performed first and the ensuing exercise bouts with fragments of the 10 RM remain in the area of the overload zone due to the onset of muscle fatigue as advanced by Zinovieff.

In the opinion of Smillie, the redevelopment of the quadriceps muscle and optimum function of the knee joint following meniscectomy are best obtained by a method of early pully-weight exercises in which the weight of the exercise load is not transmitted to the joint structures when the quadriceps is relaxed.

The pulley-weight apparatus recommended by Smillie, and recently redescribed, allows for the convenient application of the principles of progressive resistance exercise to the quadriceps without strain to the knee joint where a "De Lorme Table" is not available.

There are, however, occasions when it is highly desirable from a rehabilitation standpoint to attempt to augment strength in a muscle with avoidance of progressive strain to adjacent joint structures at any time.

Methods previously proposed for development of muscle strength are dynamic and presumably composed of a shortening contraction followed by a lengthening contraction, both of which are subjected to progressive overloading and performed without any sensible pause between the two. The progressively prolonged isometric tension method consists of both dynamic and static phases with the static phase subjected to progressive variation. The progressive overloading may be considered to be in relation to the time unit while the weight factor (leg and foot) remains constant.

Baer et al. have recently pointed out that it is not power in the physical sense, work per unit of time, that is a major factor in determining improvement in strength following exercise programs, but rather the amount of tension developed by the muscle during exercise.

In dynamic exercise for the development of strength, maximal tension is developed as the muscle works against increasingly heavy loads, thereby activating a greater number of motor units through strong voluntary innervation rein-

forced by increased proprioceptive stimuli from the exercising muscle. This is necessary since, according to the "all-or-none" theory, each motor unit which responds, responds maximally.

Possibly in combined dynamic and static exercise the desired effect, activity of the greatest number of motor units in the exercising muscle, is called forth serially to a greater degree than normally by prolonging the duration of the contraction to the fatigue zone, rather than by maximal effort against a load. It would seem that the normal sequential or asynchronous pattern of motor unit participation in an activity might be enhanced in this type of exercise.

### PROGRESSIVELY PROLONGED ISOMETRIC TENSION METHOD

In the exercise method employed, the patient sat with the legs hanging over the edge of a treatment table. A towel roll was placed beneath the distal portion of the thigh so that the femur was approximately parallel with the floor and the thigh was comfortably supported. The extremity not being exercised was resting, supported on a stool.

The greatest length of time which the knee could be held in a fully extended position for each of 10 repetitions was determined by trial for the first and ensuing weeks. In making the determination the leg was extended at moderate speed from a hanging position, maintained in extension for the trial period, then returned to the starting position. Rest period of 10 to 15 seconds followed each extension.

*First week's exercise*

10 extensions of knee sustained for 10 seconds each
10 seconds rest between extensions
Series of extensions repeated 3 times daily

*Second week's exercise*

10 extensions of knee sustained for 15 seconds each
10 seconds rest between extensions
Series repeated 3 times daily

*Third week's exercise*

10 extensions of knee sustained for 20 seconds each
15 seconds rest between extensions
Series performed only 1 time daily

The *fourth* week conventional progressive resistance exercise using the "DeLorme Table" was begun with a 10 RM of 2½ pounds. The second *(fifth)* week of conventional PRE the 10 RM was 5 pounds.

On July 26, after 2 weeks of the progressively prolonged tension exercise the patient was able to perform unsupported walking with a slight limp.

On August 16, the patient was discharged from the hospital and treatment was discontinued. He could extend the knee completely and flex it to 90°. He had what was termed by Major Brill as "good strength" of the quadriceps and could walk without limping. He was maintained on a reduced physical profile with regard to lower extremities but shortly thereafter began working as a meat cutter in the Post Commissary, a job which required fairly long periods of standing.

Similarly gratifying results were obtained in a second patient with transplantation of the patellar tendon and in several patients with rheumatoid and hypertrophic arthritis of the knee joints. It is hoped that more work may be done toward establishing the efficacy of this exercise method.

As is frequently the case in a program of progressive resistance exercise, the maximum output level for the progressively prolonged isometric tension exercise was determined on each Friday. The exercise sequence was performed Monday through Thursday on the basis of the determinations made the previous Friday. The greatest length of time for which the completed movement might be maintained for each of 10 repetitions might be considered to be a "10 RM" with the unit expresed in terms of time (seconds) instead of weight (pounds).

It should be emphasized that a maximum expenditure of effort was encouraged. Toward the end of the trial period in determining the greatest length of time for which the knee could be held in a fully extended position for 10 repetitions, as well as in the succeeding week's exercise, the patient reported a feeling of fatigue in the muscle and wide-spread muscle fasciculation was observed.

### SUMMARY

The progressive resistance exercise method of DeLorme has been in use for the past decade as a reliable method for the development of muscle strength.

DeLorme and other workers have pointed out that the amount of exercise as well as the method of application must be adjusted to the capacity of the individual patient.

Smillie has emphasized that in early exercise following meniscectomy it is undesirable to have the weight of an exercise load transmitted to knee joint structures with the quadriceps muscle relaxed and has described a resistive exercise technic to meet this criterion.

There are occasions when it is desirable to augment muscle strength, but progressive strain

to joint structures at any time during the exercise period is prohibited.

Report of a case has been given in which a method of developing muscle strength was used which employed progressively prolonged isometric tension exercises. In this method the progressive overloading might be considered to be in terms of time instead of weight.

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# *Physical Therapy in a Neuropsychiatric Hospital*

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Management of the psychotic patient in the physical medicine program has received attention from Meislin, Dancik, and Riemer, yet little has been written about the contribution of the physical therapy section in this program. It is true that in a neuropsychiatric hospital physical therapy is frequently prescribed for the same type of disorders found in a general medical and surgical hospital, but the psychiatric disorder is superimposed on, and sometimes sponsors, the physical disorders. Thus, it is essential that the physical therapist have a knowledge of psychiatric conditions and the technics that are used in treating these conditions.

## SECONDARY PHYSICAL DISORDERS

1. *Venostasis with resultant edema of the lower extremities.* This condition is most frequently found in the catatonic patient. In such patients venostasis and edema appear as the result of "posturing positions." For this condition, Buerger-Allen exercises are beneficial and may be used in group treatment on the ward. We have found that this treatment has benefited the patient by reducing the edema. If a patient is resistive or noncooperative, the physical therapist assisted by an aide can move the patient through the necessary positions with good results. In most instances following these supportive measures, he will subsequently perform the exercises himself.

2. *Clenched hands.* This posture is common in catatonic patients. Fingers are flexed either normally into a fist or flexed at the proximal interphalangeal joint. Contractures and maceration of the skin may be present. A whirlpool bath followed by active and passive stretching has been found to alleviate this condition. The whirlpool bath also cleanses the macerated areas and promotes healing.

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3. *Hyperhydrosis.* While this disorder is common in the general population it seems especially prevalent in psychiatric patients. The patient usually shows symmetrical erythema extending completely around the foot. In addition, some patients' feet are denuded and macerated. Iontophoresis can be given satisfactorily by placing the patient's feet in a 2 per cent solution of copper sulfate and having the patient sit on an electrode pad 10 inches x 12 inches which is connected to a low volt machine. It should be noted that the usual iontophoresis procedure is unsatisfactory with neuropsychiatric patients since such patients are likely to break the circuit (by pulling their hands out of the water) and receive a mild electric shock. The neuropsychiatric patient will more readily sit on a pad than keep his hands immersed in a solution for a period of time.

4. *Ecchymosis of the periorbital region.* This problem is common to patients and employees alike. Since employees in a neuropsychiatric hospital must frequently deal with assaultive patients, injuries of this nature are unavoidable. Treatment by galvanism is initiated as soon after the blow as possible. This is done by placing a wad of cotton saturated with saline solution over the bruise. The active electrode is placed on top of the cotton and the inactive electrode is placed behind the neck. Positive galvanism is used if the patient is treated in the first half-hour following the assault; otherwise negative galvanism is used. If abrasions are present, they are covered with vaseline in order to prevent the current from reaching the injured area. Galvanism in the treatment of ecchymosis is more extensively reported by Dancik and DeGroot.

## HYPERACTIVE AND HYPOACTIVE PATIENTS

Classical physical therapy technics for the hyperactive patient have been considerably altered in this neuropsychiatric hospital by the use of a heated swimming pool. This technic as reported by Knudson requires 92°F. and the patient remains in the pool for approximately 1 hour. This procedure has replaced the use of the wet sheet packs and continuous-flow tubs in this hospital. Electric cabinet baths, needle showers, and Scotch douches are used for stimulation or sedation. Stimulation is given by placing the patient in an electric cabinet bath at 110°F. until he is warm but not perspiring. The needle shower is then administered at 100°F. for 2 minutes followed by the Scotch douche with one stream at 100°F. and the other at 95°F. The temperature of the stream at 95°F. is dropped 1 degree daily until it reaches 70°F. For sedation, the patient is allowed to perspire actively for approximately 7 to 10 minutes in the electric cabinet bath. The needle shower is then administered at 95°F. for 10 minutes. These latter procedures have been used frequently in our ward management of the patient.

In addition to the hydrotherapy methods described above, ultraviolet light therapy is a valuable adjunct to all other forms of therapy. It is a recognized fact that ultraviolet light has a tonic effect on young persons. At our hospital selected patients are gathered in small groups in a common waiting room where socialization is encouraged by music from a radio and games involving two or more people. Both objectives, namely, the tonic effect of ultraviolet light and socialization are important for the psychiatric patient.

The general posture of the psychiatric patient deserves attention. Good posture is essential to a feeling of well being and is often lacking in the psychiatric patient. To assist the patient in attaining good posture a program of posture exercises is helpful, especially for the female patient to whom appearance is important. The hypoactive patient is more likely to need such a program and has responded well to it.

## PHYSICAL THERAPIST-PATIENT RELATIONSHIP

It is not enough that the physical therapist be well versed in the fundamental principles of physical therapy and their application. He also must have an adaptive personality; that is, the ability to establish the appropriate interpersonal relations to meet the challenges that patients will offer due to their psychotic manifestations.

1. *Acceptance of the physical therapist.*

Depending upon the mood of the psychiatric patient, the physical therapist must at different times be gentle, kind, understanding, patient, firm, just, exacting, and sincere. In approaching a psychiatric patient for the first time, the physical therapist must have a sincere and explicit attitude of service toward the patient. If this attitude is not present, the patient can readily "sense" that the physical therapist cannot help him and he will not work with that particular therapist.

An example of the importance of this kind of therapist-patient interaction is the case of J. J. who had been under treatment in the

physical therapy department for approximately nine months. His physical therapist was about to leave for summer vacation and another physical therapist was assigned to the case. The patient's immediate reaction to the new physical therapist was explosive and abusive; in fact, he would not allow the physical therapist to treat him. However, when a third physical therapist was assigned, the patient again became cooperative. Subsequent study by the chief physical therapist made it clear that J. J. felt that the second therapist did not believe his condition could be helped.

The importance of the patient's attitude for the acceptance of the physical therapist was further highlighted when the rejected physical therapist was accepted by a different problem patient, Mr. K., an abusive, noncooperative and vindictive patient. When the physical therapist arrived at his room and spoke to him, the patient was suspicious and would not allow the physical therapist to approach him. Gradually, as a result of visits over a period of three to four weeks, the physical therapist was able to begin treatment. Following this period, the patient allowed continued treatments even though he carried on an abusive patter all the while.

2. *Fear of physical therapy modalities.*

The physical therapist's understanding attitude is important when intense fears of physical therapy modalities are exhibited by the patient. The psychiatric patient seems to have more intense fears than would be encountered ordinarily in the general hospital population. Tact, diplomacy, and understanding are needed so that the patient can be made to realize that the treatment will help rather than harm him. An example occurred when a patient was sent to our department for application of copper iontophoresis. The patient's immediate reaction upon seeing the machine and the electrodes was to confuse it with electric shock therapy. The physical therapist had to convince the patient that the machine was not what he thought it was, but rather that it was used for the treatment of foot conditions. With patience and understanding a vast majority of these fears can be alleviated and treatment will be accepted. A few patients, however, persist in their intense fear and these patients are returned to their wards where substitute treatments are administered.

3. *The noncooperative patient*

Certain patients are noncooperative for reasons other than lack of confidence in the physical therapist or fears of physical therapy modalities. The case of A. L. is illustrative. This patient was a problem to all concerned; he could not feed himself, take care of his toilet needs, or attempt to get out of his bed or wheel chair. He was brought to the clinic and one of the physical therapists accepted the patient as a challenge and volunteered to treat him. At first A. L. was completely indifferent to all attempts by the physical therapist, although at no time was he resistive or abusive. The physical therapist passively moved the patient's limbs through the complete range of motion and encouraged A. L. to cooperate in the procedure. After about two months of such treatment A. L. started to participate and is now cooperating most of the time. He can now feed himself if he wants to, button his shirt, smoke cigarettes, and requests help for his toilet needs.

4. *Patients having pseudopain*

Frequently a patient may insist that he has a painful area and demand treatment from his ward physician. After further evaluation by the physiatrist, treatment is instituted for psychological reasons although we endeavor immediately to start weaning the patient from his desire for such treatments. B. L. was referred to the department complaining of pain in his forearm. Examination by the physiatrist revealed no definite findings. Luminous infrared was prescribed and administered once a day for one week after which the patient was reevaluated. During the week of treatment the physical therapist approached the patient with the attitude that his condition would improve after each treatment and the patient was complimented on the progress he was making. At the end of the week the patient was reevaluated by the physiatrist who prescribed a gradual reduction of treatment and complimented the patient on his progress. This procedure has usually resulted in the disappearance of the patient's complaint. Luminous infrared was chosen by the physiatrist in order to impress the patient with the fact that something was being done for his condition. Past experience has shown that if the psychiatric patient can *see* things being done for him, his response to treatment is usually good.

## SUMMARY

1. Some of the problems peculiar to physical

therapy for neuropsychiatric patients have been presented.

2. Treatment procedures for certain physical disorders of psychiatric patients have been described.

3. Physical therapy technics for hyperactive and hypoactive patients have been discussed.

4. The importance of the physical therapist-patient relationship has been considered with respect to acceptance of physical therapist, fear of physical therapy modalities, noncooperative patients, and patients having pseudopain.


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# An Exercise Program for the Brain-Injured

Mary Jane Torp, Capt., AMSC

A program for traumatic brain-injured patients was developed at Tokyo Army Hospital in Japan during the period from 1952 to 1954. Neuromuscular facilitation technics which form the basis of this program have been discussed in another article.* A review of these technics will be indicated, although much of the outlined program may be of use without knowledge of the technics. Some aspects of the program, such as organization for scheduling the treatment load and early emphasis on self-help activities, developed because of the patient census fluctuations common to the military scene. Recent community planning for mass casualties indicates that these aspects could be of interest to those in civilian hospitals as well. It is with this in view that some particulars of the organizational process are included here.

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*Adaptations of Neuromuscular Facilitation Technics* by Captain Torp, appeared in the September *Physical Therapy Review*. Captain Torp was employed at Kabat-Kaiser Institute, Washington, D. C., from June 1948 to June 1950. This paper is based on work done by Captain Torp during her work with United Nations patients at the Tokyo Army Hospital, September 1951 to March 1954, for which she was awarded the Bronze Star Medal.

## I. The Program

### AN ILLUSTRATIVE CASE

The case history of Patient 5, which was particularly well documented as to selection of technics used in securing function, is introduced to illustrate the facilitation technics most commonly employed in reeducation of the brain injured patient.

The patient incurred a penetrating wound to the right parietal region. A right parietal craniectomy was performed on the day of injury. Treatment started 39 days post-trauma. At this time the left extremities were flaccid, and passive range of motion was normal. The patient was alert and cooperative but aphasic and cried easily. A secondary craniectomy was performed 51 days post-trauma, with treatment resumed at 56 days.

Status at 56 days: Left extremities remained flaccid. There was some pain in finger extensors, hamstrings and shoulder adductors in the stretch range, with barely perceptible tightness. Reinforcements, all from the supine position, are described.

*Elbow flexion.* The arm was extended, abducted, internally rotated, pronated, and the wrist was flexed with ulnar deviation. From this position the patient attempted to bring the arm up toward the opposite shoulder in the same manner that he would lift back the bed clothes had they fallen off to that side. (This motion was termed medial lift.) The physical therapist grasped the patient's hand and elbow, guided and resisted simultaneously, directing most attention to the hand. In the shortened range little preliminary tugs, sometimes half-a-dozen, were used to attempt stimulating stretch response.

*Finger flexion.* In addition to beginning the exercise from a stretched position, symmetrical stimulation of the opposite side was utilized. When making the effort to flex the fingers, the patient clenched the opposite fist, and pushed into total extension of trunk and lower extremities.

*Leg extension thrust.* Pressure stimulation was utilized by placing the hand on the sole of the foot. The knee was pulled up toward the chest to get stretch impetus. After a few momentary reversals, in the shortened range of extension, response came as the leg started back up into the flexed position.

*Hip abduction.* The physical therapist held the patient's legs crossed and high off the plinth. The patient tried to push down and out while the physical therapist prevented extension; this forced the legs into abduction. As abduction became stronger the extensors were not stimulated as strongly; i.e., the physical therapist did not hold the patient's legs as high off the plinth in the starting position since less reinforcement was required.

Status at 57 days: Sitting balance was attempted but the patient fell to the left. Standing balance was started. The hip was completely unstable and extension thrust was not strong enough. Elbow flexion was secured without reinforcement but not through complete range.

*Elbow extension.* The patient attempted to thrust the arm toward the ceiling (lateral thrust) from an initial position of horizontal abduction and elbow flexion, hand touching the opposite

*Figure 1.* An exercise using primitive postural mechanisms and stretch response to stimulate triceps activity.

Top. Beginning position; physical therapist cautions, "Don't let your hand drop."

Center. Neutral position at which triceps activity usually first appears.

Bottom. Physical therapist catches hand just before range is completed. The patient attempts a thrust toward the ceiling before the next sequence starts.

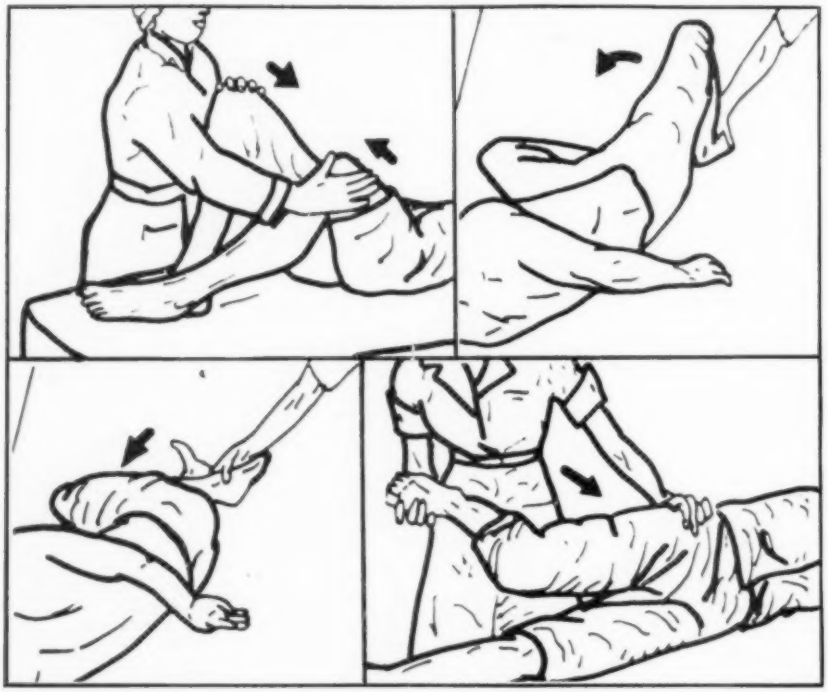

*Figure 2.* Activation of hip flexors using hip adduction and rolling as initial sources of power.

Top left. Hip adductor strength built up bilaterally.

Top right. Patient rolls to opposite side from knee balancing position.

Bottom left. Physical therapist maintains slight resistance on hip adduction and total flexion as patient completes roll to side, stimulating hip flexion.

Bottom right. Patient attempts to roll prone from side-lying position; physical therapist resists strongly at the hip and less strongly at the dorsum of the foot to encourage hip flexion.

shoulder. The physical therapist next extended the elbow, then allowed the arm to drop sharply toward the patient's face, catching the arm just past the middle part of the range. (See Fig. 1.) This was repeated five or six times. The first activity was noted in the middle part of the range, during the "drop," when triceps was lengthening.

*Hip adduction.* Both legs were spread radically apart, with knees straight, the patient then attempted to bring them together against resistance. The adductors were worked up because they were to be used to reinforce hip flexors. The knee-balance position, bilateral, was next used—as illustrated in figure 2, top left panel.

*Hip flexion.* The leg was stretched down and over the plinth edge, with knee flexed and foot dorsiflexed. Initial power came from the adductors, when the patient was asked to pull the leg up and in. The physical therapist guided the line of pull diagonally toward the opposite shoulder. The foot and knee were held fairly constant, as the physical therapist took the hip through range several times, then by reversing in the lengthened range several times response was secured. Flexors were active for only a few degrees, after which hip extensors prohibited further flexion. (When knee balance was used the physical therapist gradually shifted the leg to a more extended position and the patient tried to regain the original flexed position as well as to adduct. Later, a rolling of the trunk and flexion from the side-lying position were combined with these technics to complete the sequence drawn in figure 2.)

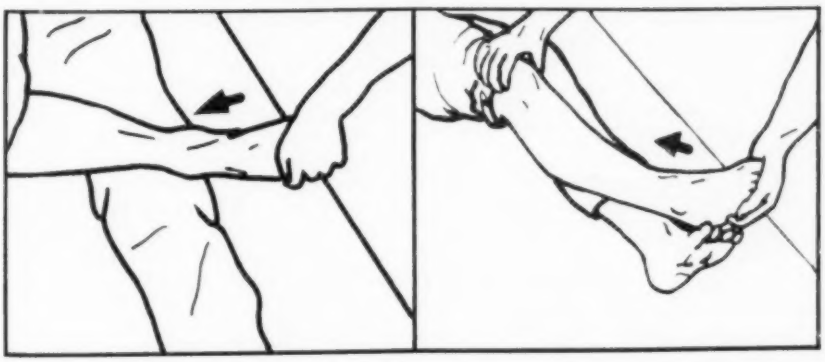

*Figure 3.* Facilitation is decreased as voluntary function increases.

Left. Tibialis anticus may require initial reinforcement in the cross-knee position.

Right. The cross-ankle position is an intermediary step toward eliminating facilitation, often can be used during the first treatment.

Status at 59 days: The patient was able to alternately flex and extend the elbow. Pectorals were reinforced in the same manner used for biceps, with initial power coming from biceps. The flexors were elicited in the position over the plinth edge. Hip flexion progressed from trace to good strength with a change in exercise sequence, starting with hip flexion rather than extensor thrust in the daily treatment. This stopped the blocking pattern of extensor thrust which had previously limited the flexion pattern.

*Index finger extension.* The hand was placed over the side of the plinth, the arm was extended slightly but as close to the patient's side as possible. The wrist was held flexed by the physical therapist. The fingers were flexed passively and then were allowed to extend when the patient tried to extend the wrist. The wrist was held during this action so arm and hand could not move, thus redirecting all energy to the fingers.

Status at 61 days: The patient had alternate leg flexion and extension patterns without reinforcement. The finger flexors responded as previously described except it was no longer necessary to clench the good hand.

*Shoulder external rotators.* With the arm, elbow flexed, across the abdomen, the patient struck toward the physical therapist, lifting the arm diagonally in abduction and flexion. (This was the lateral lift position.) The forearm was maintained in a pronated position; the elbow which had been flexed was allowed to extend. Initial external rotator power was thus secured by reinforcement from triceps.

*Thumb radial abduction.* The patient's hand was turned away from the face, elbow slightly extended, thumb held down in the palm. Resistance was given to the elbow flexors, wrist extensors, radial deviators and supinators, and the thumb was allowed to extend partially. Continued isotonic contractions in the strongest portion of biceps range, just beyond the middle range, finally brought response of thumb radial abduction.

*Ankle dorsiflexion.* This was worked up in a flexion pattern, first coming in with resisted hip flexion. As response increased in strength the cross-knee position was then assumed, later cross-calf. (In the cross-knee position the affected leg was crossed over the good leg, the ankle of the affected leg resting just above the knee of the good leg. The knee of the affected leg was allowed to fall outward and slight resistance was given to the hip adductors by pushing on the knee. Most resistance was given to toe extensors and some to dorsiflexion, priming the dorsiflexors. Figure 3 illustrates this reinforcement and the succeeding exercise progression to cross-calf position.)

Status at 66 days: The patient flexed and extended the leg alternately and readily, though there was marked external rotation on flexion and inward rotation on extension. A knee cage was applied and the patient started walking with

a physical therapist holding each arm in crutch-thrust position. More time was spent on developing stability than on walking. (The physical therapist placed her hands on the patient's hips, gently pushed the patient off balance from side to side to get lateral stabilization, then forward and backward to achieve pelvic tilt.)

Emphasis was shifted to walking, as two walking periods a day were scheduled. In the afternoon of the 66th day the patient took three good steps.

Status at 71 days: The patient walked without use of the knee cage.

Status at 73 days: The patient exhibited excellent crutch thrust but now had difficulty getting smooth elbow flexion throughout range, due to emphasis on crutch thrust pattern in arm exercise. The left hip was unstable unless crutch thrust was used to reinforce the trunk and lateral hip stabilizers. In the afternoon the patient took 15 good steps before a left scissors gait became evident. Speech was slow but no longer hesitant, and the patient now cried infrequently.

Terminal status on the 76th day: The patient walked 40 yards in the morning before his hip tired and scissors gait became pronounced. Sitting balance was good without use of hands. There was little change in the upper extremity due to emphasis on walking, however, all muscles responded without reinforcement, except opponens pollicis and flexors pollicis longus and brevis.

Case review for program development: Analysis of the patient's progress indicated the need for more stressing of hip and trunk stabilizing exercises, total activation rather than selective emphasis in reeducation, and self-help exercises to permit adequate length of treatment.

## ORGANIZATION

### *Treatment units*

Many of the patients were United Nations soldiers who did not understand English. This necessitated many treatment units designed to overcome the language barrier. These units were found generally useful as many brain-injured patients could not comprehend detailed orders. If a patient did not appear alert, or if kinesthetic sense appeared lacking, physical therapists would try to find an activity that would automatically stimulate the action desired. Wrestling and crawling were valuable for this purpose, particularly when hip flexion was lacking.

Diving instructors sometimes hold a bamboo pole thigh-high in front of a diving pupil to stimulate an upward spring and correct a tendency to dive flat. The physical therapist, by holding a cane several inches from the floor in front of a patient, can give him an objective, enabling him to flex the hip and knee more easily. Walking backwards was found conducive to developing kinesthetic sense and balance as well as knee stability and plantar flexion. A session at the wall pulleys, in standing position and using the arms, was found a good prewalking exercise to stimulate trunk stabilization.

### *Pre-reeducation activities*

It was often obvious that the more a patient tried to do something the less was accomplished. Warming-up helped to overcome this tendency and to prepare the patient for the most effective use of the physical therapist's time spent in individual reeducation. The idea was to induce relaxation and to encourage the patient to think about something other than his inert muscles. The overhead pulleys were frequently used for this purpose. As a rhythm developed, work became automatic and the alternate pathways appeared to take over. Often it was apparent that these pathways were all the patient had to work with. It then became doubly important that they be stimulated to start desirable function early, before undesirable patterns developed. This applied to swearing and personality patterns as well as patterns of movement; avoidance of stress and frustration tended to minimize undesirable outbursts.

Warm-up periods were of a minimum length of time rather than a certain number of hurried repetitions. A long workout was favored. After the initial period of work, the patient was usually able to settle down and give a smoother performance. In fact, frequently a patient could not perform the exercise without help, but after a rhythm had been established by 20 or more repetitions, he could continue alone with increasing skill for 5 or 6 minutes. This was particularly true of the "scooter board" exercise for hip abduction and adduction. Some lethargic patients were just the opposite in performance, running down after several repetitions and requiring new starting stimulus at intervals.

### *Work stage method*

The program naturally evolved into work stages, each consisting of one area in the clinic at which a number of exercise units could be performed by several patients at the same time. The

gym warm-up units, the mat warm-up units, reeducation on the plinth or mat, and hand activitiies at the tables were all work stages. Patients were taken through most of the sequence of exercise units by nonprofessional assistants, permitting the physical therapists to concentrate on the reeducation stages, special problems, and supervision.

Most patients were scheduled during the same several hours every day (preferably late morning because of the alertness factor) and worked out in the same large room. Each physical therapist could observe the progress of each patient at a glance. No effort was lost when it was necessary to change physical therapists for a few minutes or days. Requirements of each patient changed from day to day, particularly with regard to the amount of time needed for individual reeducation. Ten extra minutes spent on one muscle group of a patient frequently achieved voluntary activity that thereafter eliminated the need for 20 minutes of individual treatment time.

Fluidity of organization permitted a patient to work longer on warm-up routines if necessary, allowing two physical therapists to work together on an unresponsive muscle group or to assist the patient in walking. It also eased problems of supervision and training and helped eliminate friction when ward schedules went awry. Ward personnel understood that if a patient were tardy another patient should be sent in his place, with the tardy patient reporting as soon as possible.

*Sequence of activity*

Sequence of activity was one of the reasons why treatment appeared more effective at some times than at others. Each exercise, properly planned and used, should have facilitated the succeeding exercise. Any premature change in order of activity might mean that the particular action required could not be performed well, if at all. A cold start, such as was required when demonstrating returned function on ward rounds, might have negative results. Many improbable feats were possible if the proper sequence was found; then the prerequisites could gradually be eliminated.

An example of facilitation during exercise was the use of the wand routine for "warm-up." A patient might be unable to lift the arm toward the ceiling in a supine position—the only apparent function being poor elbow flexion—yet, when an ace bandage held the hand in place on the wand, he could flex the affected elbow with the assistance of the other arm. After repeated elbow flexion and extension, the arm would be flexed completely and then thrust toward the ceiling. After thrusting was repeated a few times, the arm was taken back into complete shoulder flexion. The entire sequence would then be repeated: elbow flexion, thrust toward ceiling, shoulder flexion, shoulder extension. After 10 minutes of this pre-reeducation routine the patient could often repeat the motions voluntarily without aid. A further example of activity sequence is illustrated in figure 2.

THE PROGRAM OUTLINE

In the following outline all activities preceded by an "s" were used as self-help activities and could be used as warm-up activities. The ward program emphasized range of motion and activation of all muscle groups. Patients progressed to treatment in the clinic before the ambulation stage was reached.

A. Gym, pre-reeducation stage
   - s-1. Overhead pulley
   - s-2. Wall pulley "pusher" exercise (Fig. 5, right)

B. Mat (plinth used if time permitted)
   - s-1. Wand routine (a, b, and c are a facilitating sequence)
     - a) Elbow flexion and extension
     - b) Thrust toward ceiling
     - c) Shoulder flexion and extension
     - d) Shoulder diagonals (canoe paddling motions)
     - e) Shoulder horizontals, abduction and adduction
     - f) Elbow flexion and extension
     - g) Forearm pronation and supination (twisting motion)
     - h) Wrist flexion and extension
   - 2. Upper extremity reeducation (suggested sequences)
     - s-a) Triceps (See Fig. 1; push toward ceiling, then drop toward face)
     - b) Lateral thrust (downward thrust, across body from opposite ear)
     - s-c) Biceps (pulling toward opposite shoulder from outstretched position, then dropping back into outstretched position)
     - d) Medial lift (same as c but without the drop)
     - s-e) Finger flexion (blocking d or f in supination)

f) Medial thrust (pulling toward opposite hip from an overhead position)
g) Lateral lift (lifting to an overhead position from the opposite hip)
s-h) Finger extension (blocking b or f in supination, or d and g in pronation)
i) Finger flexion and extension (alternately blocking elbow flexion and extension, as required)
j) Thumb extension (blocking supination, elbow flexion, and wrist extension combined)
k) Thumb flexion and opposition (blocking pronation, elbow extension, wrist flexion, and finger flexion combination as required)

3. Trunk reeducation (usual progression, not a daily sequence)
a) Ball balancing (Fig. 4, top left panel; patient is pushed slightly off balance in differing directions)
s-b) Rolling
s-c) Bridge (supine, patient's ankles on stool, or physical therapist's shoulders, patient lifts hips. A variation is movement from side to side once hips are elevated)
d) Lateral bridge (side-lying, legs elevated, patient lifts hips. Performed on both affected and unaffected sides. Fig. 4, bottom left panel)
e) Wrestling (patient attempts to remain sitting while physical therapist pushes against patient's arms or chest in varying directions, holding patient's legs so as to secure desired muscle action)
s-f) Kneeling (with or without handhold, with stabilization, or alternately sitting and rising)
g) Stretch position off plinth edge (supine, prone, or side-lying. Fig. 4, top right panel)
s-h) "Scooter board" (both legs in the box for lateral abdominals)

4. Lower extremity reeducation (b and c, and d and e are usual facilitation sequences)
s-a) "Scooter board" (affected leg in the box, for hip abduction and adduction)
s-b) Bilateral knee balance for hip adduction
c) Hip flexion
(1) side-lying, with or without trunk rolling
(2) supine, over plinth edge
(3) knee balance and hip adduction work-up
(4) wrestling (keep the patient in a half-sitting position, hold down affected leg, and push the patient backward using the opposite arm or contact with the chest)
(5) reflex (internal rotation, toe extensors)
d) Extensor thrust
e) Bilateral hip abduction and adduction (with or without extension; supine or prone with legs over the edge of the plinth)
f) Hip abduction with extension and external rotation
g) "Bicycle riding" in place (patient supine, two therapists move legs in bicycling motion)
s-h) Ankle cross-knee, cross-calf, cross-ankle positions (Fig. 3)
(1) dorsiflexion
(2) eversion
i) Ankle functional combinations
(1) peroneals with hip abduction
(2) dorsiflexion with peroneal stabilization combined with flexion pattern

5. Walking activities (d and e are a usual sequence)
s-a) Crawling
b) Kneeling (Fig. 4, bottom right panel)
s-c) Walking in place on knees (using chair back or other handhold)
d) Walking on knees (hands on physical therapist's shoulders, therapist knee-walks backwards)

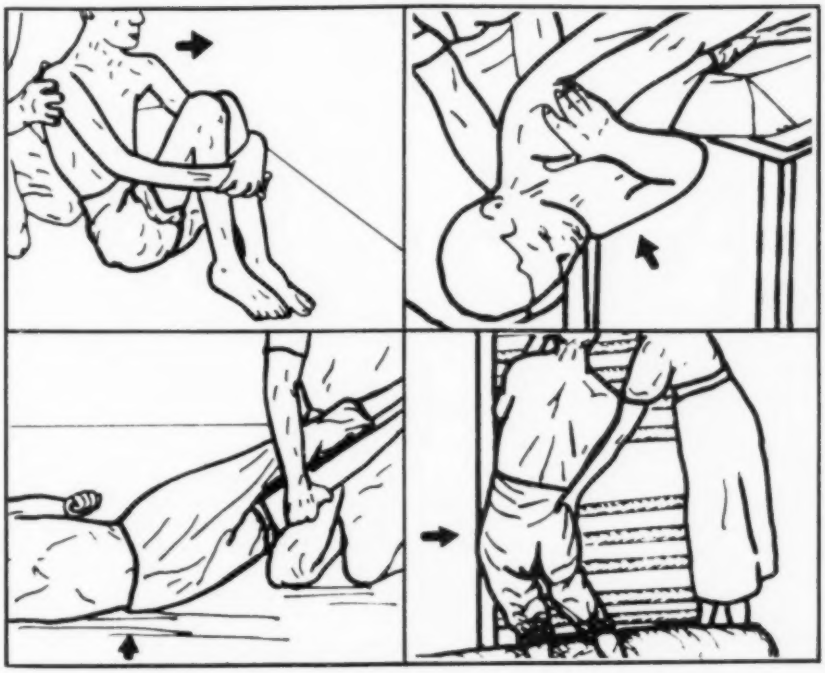

*Figure 4.* Trunk strength is a prime factor in early ambulation and trunk muscles are used as reinforcement sources in stimulating extremity activity.

Top left. Patient is pushed off balance to stimulate trunk activity.

Top right. Lateral trunk-hip muscles respond strongly in an off-the-plinth exercise.

Bottom left. Lateral trunk-hip muscles may be strengthened by lateral "bridging."

Bottom right. Kneeling patient is pushed off balance to the good side to stimulate response in affected lateral trunk-hip muscles.

e) Standing stabilization (with knee cage, if required)

f) Walking (using knee cage and other assistance when necessary)

C. Gym, post-reeducation stage

s-1. Activating activities

a) Bicycle

(1) dorsiflexion, with foot strapped to pedal

(2) extensor thrust, with seat high

(3) flexor pattern, with foot strapped on and seat adjusted low

b) Spring ankle exerciser, for toe extensors

c) Picking up and dropping marbles with toes, stimulating toe extension and dorsiflexion on the release

d) Wall pulleys, standing, using arms to lift weights (in a position facing the wall, toe flexion, dorsiflexion and last range of quadriceps may be stimulated)

s-2. Strengthening and coordinating activities

a) Shoulder wheel, clockwise and counterclockwise for scapular muscles

b) Wall and overhead pulleys for scapular muscles
c) Wrist roller for wrist extension
d) Finger exercises
   (1) marbles, grasp and placement
   (2) abduction and adduction in sandbox
   (3) "drumming" on the table top (rapid rhythmic action of the lumbricales)
   (4) children's games, such as "church and steeple"
e) Bicycle
f) Rowing machine (flexor pattern, toe extensors)
g) Knee bends at stall bars or foot of bed
h) Spring ankle exerciser
i) Parallel bars walking (forward, backward, sidewards in both directions, on toes and on heels)
j) Stair-climbing (low stairs for knee instability and higher stairs for hip flexor weakness or quadriceps spasm)
k) Marbles for toe coordination
l) Towel exercises for ankle and toes

EQUIPMENT

Regard for seemingly insignificant details made much of the program possible, particularly self-help activities. The thickness of the wand used in wand routines, for instance, was important. The narrow standard wand was not successful as the patient's grip could not be stimulated to reinforce wrist extension. A wand 1½ inches in diameter was required, preferably of lightweight wood. An ace bandage was used to bandage hands that were unable to grip the wand, as it provided better and more secure alignment than a glove.

The powder board apparatus, termed the "scooter board," requires elucidation. The board was made of pressed fiber board rather than plywood because of its smoother surface. The box was roughly 1 foot by 1 foot square, about 6 inches deep, with a semicircular cut-out at opposite ends to hold the leg. Ball bearing mountings were attached to the four corners of the base. They were superior to ordinary casters as they provided almost frictionless movement and did not impede reversing movement. Sand bags could be dropped into the box to provide resistance as the patient progressed.

When tying the foot to the bicycle pedal to stimulate dorsiflexion, two small straps were used instead of a toe clamp. Straps could be adjusted to give stretch reinforcement at precisely the right spot and to prevent lateral instability of the ankle. Care was taken to adjust the height of the bicycle seat for each patient, in relation to the muscle function being stressed at the time.

A "slider" made of cardboard was used on the parallel bars to aid early walking (Fig. 5, left panel). It permitted natural lateral stabilization by the upper extremity even though there was but a rudimentary grip in the hand. The patient could place his hand on the cardboard and slide it along as he walked. Holding a beanbag in the hand (a purse for a woman) served a similar purpose in later stages of ambulation.

Mat work was used much of the time as it gave the physical therapist more freedom of action and permitted patients to be left alone for a few minutes when necessary. Patients not absolutely trustworthy in wheel chairs were safeguarded while sitting by passing a sheet under the armpits and tying it to the back of the wheel chair. Such precautions permitted self-help activity which otherwise would have been impossible.

## II. Program Review

THE SITUATION

The case histories of 206 brain-injured patients were reviewed. These cases were selected only as to their completeness for statistical purposes. The majority of the patients were in their early twenties. Most were war casualties, although some of the injuries were caused by vehicular accidents. Early in the study 5 cases nontraumatic in origin were included and have been retained in the final review. Brain areas involved included 9 biparietal, 11 bifrontal, 5 frontal-parietal-temporal-occipital lesions and numerous other cases with less severe involvement. Complications were the rule rather than the exception, including multiple shell fragment wounds, penetrating chest or abdominal wounds, extremity fractures and amputations, or loss of eyesight. It was sometimes difficult to assay neurological deficit because of these complications.

Patients were evacuated by air to the United States as soon as their condition stabilized. The median length of treatment time in Japan was

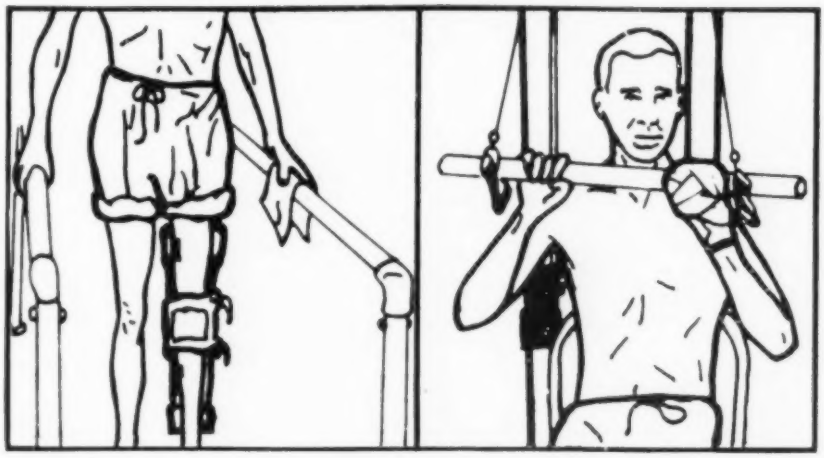

*Figure 5.* Simple equipment adaptations make possible many self-help activities.

Left. Early ambulation aided by a simple knee cage, a "slider" of paper for the affected hand, and parallel bars.

Right. Spastic biceps blocking triceps range slowly relaxes during the wall pulley "pusher" exercise.

20 days. In view of this short period for treatment, speed and efficiency were essential. The goal of the program was reciprocal voluntary function of all extremities before the patient left Japan so that postponement of treatment during transit might not lead to muscle imbalance or regression in function.

## INITIAL ACTIVITY

Facilitation technics permitted an aggressive approach in reeducation. Initial activity in most cases was elicited by means of reinforcement. Initial response by reinforcement determined direction of emphasis in the early days of the program.

During the first 25 cases it appeared that triceps vied with biceps for the lead in upper extremity return, while extension thrust was noted first in the lower extremity. A review of the first 50 cases, however, indicated that no one muscle group returned first for any reason other than that the physical therapist or patient was able to stimulate some groups more often. Due to rolling movements of the restless patient, flexors and adductors may respond first in untreated patients; however, with the methods of activation used in this program, extensor groups frequently responded first.

Total activation was practiced through most of the study. All muscles were exercised; if the agonist was functioning the antagonist was emphasized until good reciprocal motion was achieved. The patient was usually able to carry on from that point under the supervision of the physical therapist.

The median time post-trauma at which treatment was commenced was 9 days. The median time at which activity was first noted was 12 days. This indicated that complete flaccidity lasted only a few days. This period of flaccidity was the desirable time to institute treatment. The disuse factor appeared to be largely eliminated, flexor spasm and other "grooved" deterrents to good function seemingly were either avoided completely or were readily overcome at that early stage.

There was but a fraction of difference between median times of initial arm and initial leg activity. In about half of the cases, activity was noted for the first time in both extremities on the same day. In four cases, however, leg activity preceded arm activity, the initiation of leg activity occurring as much as 32 days before arm activity.

## AMBULATION

The chief objective of most of the patients appeared to be independent walking, so this became an important goal of the program. Ambulation was frequently resorted to for the apparently

comatose patient. Some of the most surprising recoveries in this respect were recorded among those patients with bifrontal lobe involvement and those with transventricular involvement.

Knee cages were often used in early ambulation. On the first trial the knee cage would be used to instill confidence and encourage weight bearing. Then the cage was removed and the patient was aided in a few steps by the pressure of the physical therapist's leg or hand. The affected leg would sometimes sag alarmingly for these first steps, then the extensors would gradually become stronger. Flexors functioned after a short initial lapse, sometimes of several days, during which the leg was dragged forward with the hip adductors. Walking was temporarily discontinued if reciprocal motion was not attained in a few days.

The median time post-trauma at which walking was started was 20 days. Before leaving Japan, 156 patients were walking. Walking ability of 65 patients was not credited entirely to treatment as these patients were able to walk without assistance when complicating wounds had healed and permission was received. Progression to walking unassisted, or with a cane, was made by 44 patients who had required aid from a physical therapist initially. Of those who had commenced walking with aid, 47 had not progressed to walking without aid before leaving Japan. Patients who were able to walk alone did so an average of 13 days from the time they started walking until they had graduated from help, this time ranged from 2 to 55 days. Only 3 days for the transition were needed by 6 patients, all of whom had commenced ambulation within 2 weeks after injury. Twenty-five days of treatment was the average for patients who progressed to walking alone.

### Cooperativeness and Consciousness

Progression by the patient to an alert and cooperative state was perhaps the most important factor in improvement, but one of the advantages of using neuromuscular facilitation technics was that the patient did not need to be alert and cooperative in order to benefit from treatment. Consciousness and cooperativeness, nevertheless, were desirable states if the patient was to derive maximum benefit from the treatment.

Initially 34 patients were comatose, while 15 were comatose on termination of treatment. Forty-eight patients were in a noncooperative state initially and 18 continued to be noncooperative. This could mean that they were belligerently uncooperative although conscious, half-conscious and passively uncooperative, or in some state between the two. Of 206 patients, 124 were initially able to cooperate with the physical therapist during treatment and 173 were able to cooperate when treatment terminated. Cooperation did not always indicate alertness as many of the cooperative patients were far from normal; indeed, many were often only semicomatose, but responded to physical activity.

### Program Evaluation

A rough estimate of program effectiveness was desired. A system of rating disability, or improvement index for each extremity was used:

| | |
|---|---|
| Flaccid | — 5 |
| Slight activity | — 4 |
| Reciprocal voluntary movement at one joint | — 3 |
| Reciprocal voluntary movement at all but one joint | — 2 |
| All gross function | — 1 |
| Good function | — 0 |

The record of Patient 202 is used to illustrate computation of the improvement index from this rating scale:

> At 8 days post-trauma the right extremities were flaccid. The initial combined rating thus was 10 points, both extremities rating 5 points. Terminally the patient had triceps respond with reinforcement, voluntary biceps and slight finger flexion in the upper extremity. All voluntary motions of the lower extremity were present, though movement was patterned rather than isolated. The terminal rating, at 36 days, was 7 points, allowing 4 points for the upper extremity and 3 for the lower. Subtracting terminal from initial combined ratings left an improvement index of 3.0 points. The patient walked terminally, with steadying by one person; this does not figure in the ratings.

The average improvement index was 2.77 points for the 184 cases with measurable disability. Many of these patients, however, did not improve to any measurable degree. The average improvement index for the 138 patients with measurable disability decrease was 3.64 points.

### Follow-Up

Follow-up after return to the United States was possible in only 10 random cases. The progress of these 10 patients is reported as a matter of interest. They were able to walk without assist-

ance upon discharge, which in most cases was within 8 months post-trauma. Three were discharged to their homes in a few months, lacking only fine coordination of the involved hand. After treatment for 14 months, a fourth patient regained fine coordination of the hand though lower extremity improvement was not as satisfactory; he wore a short brace because of lateral instability of the ankle. A fifth patient returned to duty 4½ months post-trauma, using a short brace for lateral instability of the ankle. The remaining patients who were discharged walked with typical hemiplegic gaits; 2 returned to their homes and 3 entered Veterans Administration facilities for further care. Two of these patients wore short leg braces and had regained some use of the affected hand. The other 3 had little function of the involved upper extremity but walked without bracing.

## CONCLUSION

Initiating treatment within the first few weeks following trauma proves invaluable for maintaining patient morale; moreover, it reduces the work load by minimizing disuse factors and loss of passive range of joint motion. Emphasis on self-help enables treatment length and breadth to be adequately flexible to meet the brain-injured patient's varying daily requirements. Neuromuscular facilitation technics permit an aggressive approach to reeducation. Attention to details and daily revision of treatment to meet individual needs are necessary correlates.

Contribution of ideas, enthusiastic cooperation and skill of the following persons helped make this program possible: Captain Marria M. Hoalt, Sergeant First Class James Wise, Sergeants Lavinia Melton, Duane Sander, Nell Cassidy, James Grey and Robert Harper.

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# Editorial

## Second Congress

The Second Congress of the World Confederation for Physical Therapy has now passed into history and remains, for those who were there, a pleasant and stimulating memory. In retrospect the one outstanding impression is the aura of enthusiasm and stimulation which was so evident throughout the week. For those fortunate enough to have attended it will be a source of inspiration and gratification for years to come.

It would be difficult to attempt to describe or even list the immediate benefits which the participants so obviously received. The scientific sessions, the social affairs, the array of new and useful devices and equipment to be seen, as well as the unparalleled opportunity to meet and exchange ideas with other physical therapists from so many countries, all contributed to the value of this gathering.

Such results, however, are to be expected from any meeting dedicated to the interests of professional people and to which so much planning and effort have been devoted. But of even greater importance than the immediate and personal gains to those who attended are the far reaching benefits which will affect the entire Association and each individual member of the APTA.

Certainly the deepest impression left by this meeting concerns the emergence of our profession as a dynamic and effective force for international good. One could not help but realize what a tremendous potential there is for a constructive contribution to world understanding and peace in a service devoted to preservation of individual human dignity through physical restoration. This meeting has further emphasized this potential by showing so clearly the unanimity of purpose and philosophy of physical therapists of all countries regardless of race, religions, and political persuasions. In the January, 1956 *Review*, Mr. Eugene Taylor quoted an English philosopher who said, "If every man would mend a man, the world would all be mended." How much more meaningful is this remark now as we review it in light of our having met with our international colleagues

# Editorial

and shared with them a common appreciation of the needs of handicapped persons of the world.

Never before has the future course of the APTA been so clearly evident or our responsibilities as members and professional people been so well defined. Whatever constructive results may occur from this potential will be determined only by how well we meet the challenge offered to us as individuals and as an association to further the growth of physical therapy as a science and an art.

Emphasis must be put on a constant rise in technical competence, expansion of research, educational advancement, and the practical realization of an ever increasing number of physical therapists needed to meet the demand. These goals will never be realized solely from the efforts of a few persons devoted to public service. Every single member of our Association has a real and immediate responsibility to contribute both in his job and in his active participation in local professional activities, if we are to assume our proper place in the World Confederation.

E. JANE CARLIN
*President*

## What They Say About the Second Congress of the World Confederation For Physical Therapy

The following are excerpts from the many congratulatory letters received in the National Office from those attending the Congress:

"It has never ceased to amaze me the way in which we were welcomed and cared for from our first visit to the American Physical Therapy Association on our second day in New York when the large impersonal city suddenly lost its strangeness . . . then later when we all enjoyed that wonderful Congress. . . . I came away not only enriched in knowledge but also in friendship as it was a time for making many friendships with people from all over the world. . . ." —AUSTRALIA.

"I want to convey to you and your committee my most sincere thanks for the beautiful, successful and inspiring Congress. I was full of gratitude for all the love and labor put into the arrangements and for the tour to Washington." —NORWAY.

"I think the Congress in itself was a wonderful experience: it is of great importance to meet colleagues from all over the world and feel the solidarity I enjoyed the time I spent in New York and across the United States. . . . I can assure you that this journey has been one of the greatest experiences of my life and I shall never forget the kindness, good will and helpfulness I met everywhere."—DENMARK.

"I must congratulate you and your associates of the Second Congress of the World Confederation for Physical Therapy on the extraordinary program that you presented. . . . There will be many a child across the world and many another sick person who is indebted to you for inspiration that you have passed on through this meeting. Let me speak for them all in cordial appreciation."—OFFICIAL OBSERVER, U.S.A.

"Now that the Congress is over I wish to thank you and all the members of your Association for your wonderful hospitality. The tremendous amount of work which must have been done by your members to make the Congress such a success is very much appreciated. I enjoyed the boat trip around Manhattan Island tremendously and I feel my visit to the U.S. has been a most memorable one."—ENGLAND.

"My warmest thanks for the wonderful Congress and for everything done to make it so

(Continued on p. 680)

Receiving line at the President's Reception

Charter plane passengers are welcomed at Idlewild

Sunday afternoon reception

Miss Griffin receives gavel from Miss Elson at closing ceremony

Receiving line at the Canadian Reception

A Scientific session

International table, Canada, Sweden, France, and England

Mildred Elson greets Eugene J. Taylor

G.V.M. Griffin, new President, M. Nesbitt and C. Worthingham

A few of the 2,486 members enrolling

Harriet Lee and Howard Rusk meet their chairman, Marjorie Spence

The Congress meets at United Nations

wonderfully successful. I enjoyed every day and every hour and I am so happy to know so many of my American colleagues. The atmosphere was so pleasant all the time and I had always the feeling I was surrounded by friends."—SWEDEN.

"Before we leave the North American country I would like to thank you and all your fellow physical therapists for the wonderful reception you have given us here. I have travelled from east to west via Canada and from west to east in the States. Everywhere we have visited we have received so much kindness and hospitality from physical therapists that we are quite overwhelmed. I think you have all done a wonderful job and I am sure it has done a tremendous amount of good to forward international relations."—SCOTLAND.

"This is a 'fan' letter of congratulations to you personally, to your Association, to the officers of the World Confederation for Physical Therapy and the American Physical Therapy Association. I know you must take a great deal of personal satisfaction in the tremendous success of the Congress. Such satisfaction is indeed well merited for the Congress was certainly a success in every way regardless of any yardstick one might apply."—M.D., U.S.A.

"I would like to extend my congratulations to you and the various committees on the subject matter, the talks, demonstrations and the quality of the speakers. They were very practical and most worthwhile."—M.D., CANADA.

"Congratulations on a most outstanding Congress. Please accept my 'thank you' for something I shall remember as long as I live."—P.T., U.S.A.

"I enjoyed the Congress and wish to compliment you on the very fine arrangements that were made to ensure that this Congress be a worthy successor to the first. I feel that the international character of the Congress contributed much to its success. I was delighted to see so many countries represented."—M.D., CANADA.

## ISWC Offers Low Cost Congress Tours in 1957

In conjunction with its Seventh World Congress, to be held in London, July 22-26, 1957, the International Society for the Welfare of Cripples has announced that it is organizing low cost travel groups which, prior to and following the Congress, will combine a program of sightseeing with a survey of rehabilitation facilities. The tours will be under the direction of a qualified leader in the field of rehabilitation, assisted by volunteers in the countries being visited.

The group will leave New York by chartered plane for Glasgow on July 13. It will take delegates to the Congress on a motor trip through the English Lake Country, to institutions in Glasgow, Edinburgh and other communities along the way, and will arrive in London for the pre-Congress social gathering on July 21. Participants may choose between two travel groups leaving London after the Congress on July 27. The first goes to Oslo, Copenhagen, Stockholm, Brussels, and Paris, and the second proceeds instead to Zurich and Lucerne, Switzerland, and then south into Italy to Venice, Ravenna, Florence, Perugia, Assisi, Rome and finally up to Paris. Both of these post-Congress tours converge for a final two-day sojourn in Paris, from where the 59 members will fly back to their New York starting-point on August 10. The entire package, which includes a round-trip transatlantic flight, plus two of the aforementioned study tours, is offered at a cost ranging between $908.00 and $960.00.

Participants must be members of the U. S. Committee for the ISWC. Interested persons can obtain full details, as well as other Seventh World Congress information, by writing the International Society for the Welfare of Cripples, 701 First Avenue, New York 17, New York.

## *Proceedings* of Second Congress

All papers given at the Second Congress of the World Confederation for Physical Therapy will be bound in a single volume to be available no later than January 1, 1957. The *Proceedings* can be ordered from the American Physical Therapy Association, 1790 Broadway, New York 19, New York, at $3.00 a copy. (For shipment outside the United States add 25 cents for postage.)

## Second Congress Souvenir

A limited supply of the Second Congress Souvenir—a sterling silver paper opener and book mark combined—is available in the National Office. Price $1.50. For those who could not attend, it is a memento of a historic event.

# Association Activities

## National Office Appointments

Following the appointment of Mary Haskell to the position of Executive Director the Board of Directors announces the following changes in the National Office staff:

Lucy Blair has been appointed Associate Executive Director effective September 7. At the same time Miss Blair will continue her present duties as senior consultant in the Department of Professional Services. This is a position which Miss Blair accepted in 1950 and through which she has so effectively developed the services of the Department for members, for employing agencies, and for the public who are our patients.

As Associate Executive Director she will assist Miss Haskell, assume responsibility in her absence, and represent the Association.

Dorothy Voss has been appointed Senior Consultant in the Chapter and Membership Department in which she has been capably serving as consultant since October, 1955. In this position, formerly held by Miss Haskell she will serve as direct liaison between the National Office and the chapters and will act as Consultant to the Editorial Board and Managing Editor of the *Physical Therapy Review*.

## Institute for Physical Therapists

**Dates:** November 5-9, 1956 inclusive

**Place:** Hotel Sir Francis Drake, San Francisco, California

**Sponsors:** American Hospital Association and American Physical Therapy Association

**Tuition:** $35.00

The program for the Institute for Physical Therapists has been developed cooperatively by the sponsoring organizations. A committee from the Northern California Chapter composed of Margaret Knott, Chairman, Laura Byrne, Ann Janett, and Maxine Schuldt is serving for the host area. The faculty of the Institute will include physicians, hospital administrators, physical therapists, lawyers, insurance specialists, and members of the staffs of the sponsoring organizations.

**November 5**

Monday A.M.
- Registration
- Greetings
- Hospital Organization
- Financial Management

Monday P.M.
- Working with Others
- Group Discussions

**November 6**

Tuesday A.M.
- Medicolegal Aspects
- Safe Practices

Tuesday P.M.
- Administrative and Professional Records
- Group Discussions

**November 7**

Wednesday A.M.
- Medical Direction
- Utilization of Personnel—Professional and Nonprofessional

Wednesday P.M.
- Technics of Supervision
- Clinical Teaching Responsibilities of the Physical Therapist
- Group Discussions

**November 8**

Thursday A.M.
- Evaluation Clinic
- Is Physical Therapy a Luxury?

Thursday P.M.
- Community Resources Available to the Physical Therapist
- How to Set Up an Inservice Training Program
- Group Discussions

**November 9**

Friday A.M.
- The Physical Therapist Looks at Herself
- Professional Resources Available to the Physical Therapist
- Accreditation Program
- Future of Physical Therapy
- Presentation of Certificates

Application forms will be sent to every active member of the Association. Applicants must be members of the American Physical Therapy Association or personal members or on the staff of an individual member of the American Hospital Association. Attendance is limited to 100 persons.

# Summary of the Minutes of the House of Delegates Meeting—New York, 1956

The Thirty-Third Annual Conference of the House of Delegates met for a one day session, June 16, 1956, at the Hotel Statler, New York. Present were delegates from fifty chapters for the opening roll call. Absent chapters were Alaska, San Diego, Santa Barbara, Mississippi, Montana, New Mexico, South Dakota, and Utah.

The meeting was called to order by the Speaker of the House, Jane Carlin, and opened with a welcome to the delegates, followed by the roll call. A letter was read from Miss Neilson, Honorable Secretary of the World Confederation for Physical Therapy, acting for the Council of the Chartered Society of Physiotherapists, bringing greetings and expressing best wishes to the APTA as the host organization of the Second Congress of the World Confederation.

The members arose and observed a minute of silence while the Speaker read a list of those members who had passed away during the fiscal year.

A committee, composed of Louise Bailey, Dorothy Schumer, and Dorothy Graves, was appointed by the Chair to edit the minutes of the House of Delegates. The Chair also appointed the tellers for the election of officers, as follows: Elizabeth Fellows, Chief Teller; Alice Chesrown, Marion Boyer, and Frances Tappan.

The following reports were given by committee chairmen, officers, and the Executive Director:

Mrs. Florence Linduff, Chairman of the Nominations Committee, reported on the activities of this committee and presented the selected slate of officers and members for the Nominations Committee. The Speaker called for nominations from the floor, but as there were none, the nominations were declared closed. The candidates were introduced to the members following the report.

Clara Arrington, Chairman of the Judicial Committee, presented the report of the work done by this committee during the year, together with its suggestions and recommendations.

The secretary, Dorothy Graves, reported the business transacted by the Board of Directors in 1955-56, and presented a summary of the chapter and district secretary's reports. Dorothy Hoag, Treasurer, after reading her report, called on R. Lewis Brown, Chairman of the Finance Committee, to explain and interpret the statistical material on the financial status of the Association prepared by this committee. Each delegate was given a printed copy of this material to facilitate the following of Mr. Brown's explanation.

The Editor-in-Chief of the *Review* Board, E. Jane Carlin, after presenting her report, announced that, as a replacement for herself, a new Editor-in-Chief had been appointed by the Board at its current meeting. Sara Jane Houtz, the new appointee, was introduced to the membership.

Mildred Elson, Executive Director, gave her final report as Executive Director to the House of Delegates. This was a capsule report of the Association and activities of the office staff under her guidance during the past 12 years. The report was completed by a presentation of the Professional Office Staff to the members, and an announcement that Mary Haskell had accepted the position of Executive Director upon the resignation of Miss Elson. The members honored Miss Elson with a standing ovation of applause as a token of their appreciation and gratitude for years of service.

All of the above reports appeared in the September issue of the *Review*.

The election was held during the noon recess of the House, and the following results were reported in the afternoon session:
(Two hundred and fifty-three votes were cast by the delegates and Board members, from a possible total of 274.)

New members of the Board of Directors and Nominations Committee are:

President—E. Jane Carlin
Vice-President—Helen Vaughn
Secretary—Louise Bailey
Treasurer—Dorothy Hoag
Speaker of the House—Agnes Snyder
Directors two-year term—Mary Nesbitt
four-year term—Sue Hirt
Dorothy Graves
Nominations Committee—Margaret Moore
Thelma Pedersen
Barbara White

Mr. Pleydell, of the firm of management consultants, Albert Pleydell Associates, Incorporated, reviewed for the members his firm's recommendations on the structural reorganization of the Association as requested by the Board of Directors. Suggestions for revisions in organic structure and relationships of the various components of the Association were explained by projected charts. Briefly, his presentation included a sum-

mary of parts of the existing Bylaws, with proposed changes in the structure of the Board of Directors which would increase the size, and the creation of the new Executive Committee, elected from within the Board; overlapping terms of office for a longer period for Board members; reassignment of the duties of the President to serve also as Speaker of the House of Delegates; the relationships of the appointive and elective committee members, and the three Advisory Committees to the divisions within the National Office, and their over-all pattern in the Association; and, the formation of a committee to assist in planning and coordinating the activities of the three Advisory Committees. The duties of the Executive Director were also described, and questions were entertained from the members. The Board of Directors will prepare such amendments to the Bylaws as may be required to make these changes. They will be published in a future issue of the *Review*, circulated to the chapters for study, and presented to the House of Delegates in Detroit in June, 1957, for action.

Lucy Blair, Chief Consultant in the Department of Professional Services, reported to the House on the preliminary findings of the recently conducted salary survey of members. Delegates were provided with copies of the report, with data completed to this time, and were given the opportunity to ask questions. Although more work is needed to analyze and tabulate the findings of this survey, it will be available to members through the *Review* when it is completed.

Virginia Wilson read a poem from the Michigan Chapter extending an invitation to all members for the Conference in Detroit in 1957.

A citation awarded by the members of the Association to Mildred Elson was read by the President, Mary Nesbitt, when by unanimous vote of the delegates present Honorary membership in the Association was bestowed on Miss Elson. The citation appeared in the September *Review*.

Mary Nesbitt, as outgoing President, was presented with an inscribed silver bowl, as a token of appreciation from the members for her term of office.

The meeting was turned over to the newly elected Speaker of the House, Agnes Snyder, who entertained a motion for adjournment which was approved by the members. The meeting adjourned at 4:00 P.M.

*Submitted by:*

LOUISE BAILEY
DOROTHY C. SCHUMER
DOROTHY A. GRAVES

## Advisory Committee on Chapter Activities

### Chapter Manual

During the past year, each chapter president, district chairman, and chapter secretary received a copy of the "Manual of Chapter Organization." This is a 57-page publication prepared by our National Office staff, and serves as an expansion and revision of "Suggested Chapter Procedures" which was a similar manual distributed in 1951. No doubt, many of you are unaware of the existence of the Chapter Manual and it is for that reason that this brief explanation is offered as to its contents and possible use. This manual should be of particular interest to all chapter and district officers, committee chairmen, and committee members; and should be of general interest to every active member of the Association.

The Manual is divided into two sections; the first section being concerned with the national organization, and the second, with chapter organization. The first item in the first section is an excerpt from the APTA Bylaws, Bylaw IV, regarding component chapters—definition, charters, limitations of chapters, and the like. Following this bylaw is a chart outlining the structure of the Association. The chart is headed by the House of Delegates and depicts the interrelationship existing among the various facets of the organization. Listed here also are "The Rules of Chapter Conduct," a resolution adopted by the House of Delegates in June of 1955. Some of your questions on the conduct of chapter business as it relates to the national organization as a whole may be answered in this resolution. There are explanations of the composition, duties, and/or purposes of the Board of Directors, the Executive Director, the House of Delegates, and the Chapter Advisory Committee. The last several items in this section on the national organization are concerned with the many and varied Association services offered through our national office. There is a detailed outline of the work of the three departments: Membership and Chapter, Professional Services, and Professional Education. These outlines not only indicate the volume of work and organization which is carried out in this office, but give the reader an indication of where his various questions might best be directed within the office, and where to find the names of consultants on the National Office staff in addressing such correspondence. There is information regarding the *Physical Therapy Re-*

*view* and the chapters' responsibilities to the *Review*, as the official publication of the Association. As members of a profession, we all have certain responsibilities for sharing our thoughts and ideas, regarding that profession, with fellow members; and it is through the *Review* that this particular responsibility may be discharged in part. Your chapter has, no doubt, requested or learned of a forthcoming visit from a National Office staff member. Have you heard the question, "Now that they're coming, what do we do with them?" The Chapter Manual offers suggestions which should help you to plan for such visits to the mutual satisfaction of all concerned. Well thought out agenda for your executive committee and chapter business meetings which may be held during the time of this staff member's visit will help to make the best use of the time spent—for the staff member as well as your chapter. Further information is offered on materials available from the National Office, annual chapter reports, and planning for the annual conference of the Association.

The second section of the Chapter Manual, as has been mentioned previously, deals with chapter organization. The duties of each chapter officer are included. Suggestions are given regarding participation by members on committees, content and maintenance of chapter files, chapter stationery, fund raising,—to mention only a few items. It is not possible to do this material justice by summarizing it. But, to those of you who are in any way participating in the activities of your chapter, this publication warrants your thoughtful reading.

The value of the information presented is in direct proportion to its use by chapter and district officers and committee members. The Manual could very well serve as a springboard to many of your chapter's activities and the conduct of your chapter's business. Most organizations, large or small, national or local, find it necessary to set down in writing certain standing rules and operating procedures. It is felt that the suggestions offered in this manual will help you to formulate the standing rules and operating procedures for your own chapter and/or district. Chapter presidents and district chairmen, wouldn't it be beneficial to initiate your chapter's activities this year by reviewing with your executive committees the contents of the Chapter Manual?

ELIZABETH FELLOWS

## School Section

At the School Section Business Meeting held Saturday, June 23, at the Statler Hotel, New York City, the following officers were elected:

Chairman —Mrs. Margery L. Wagner
University of California
San Francisco, California

Vice-Chairman —Ruth Cook
Morrison Center for Rehabilitation
San Francisco, California

Secretary —Carmella Gonnella
University of Texas
Galveston, Texas

The Committee which had been appointed a year ago to study the rules of government of the School Section made its report and explained the revised rules of government, which had been sent to all members previous to the New York Meeting. Following considerable discussion the proposed revised rules of government were accepted.

## Colonel Vogel Sparks PT Participation at All-Army Tournament

Physical therapists of the Army Medical Specialist Corps were stellar golf and tennis performers in the All-Army Women's Sport Tournament held in August at Fort Bragg, N. C.

Col. Emma E. Vogel, the first chief of the Army Medical Specialist Corps now retired and living in Florida, presented the Col. Emma E. Vogel Golf Trophy to M/Sgt. Eleanor Jones, WAC, representing the Far East, for being the Army's best woman golfer of the year.

Runner-up was 1st Lt. Helen Cruickshank, Army Medical Specialist Corps physical therapist stationed in the Far East who tied with Sergeant Jones for first place in that command. An article, "The Role of the Physical Therapist in the Management of Heart Disease" authored by Lieutenant Cruickshank appeared in the *Physical Therapy Review*, November, 1955. On her return trip to her station in the Far East she carried with her the Vogel trophy. The trophy will remain in the Far East until it is claimed by a new winner next year or re-won by a player from that command.

Another golf winner was Capt. Amelia Amizich, from Brooke Army Hospital, Fort Sam Houston, who was given the consolation prize in the eliminations. Other participating golfers were: Capt. Florence Murley, Fitzsimons Army Hospital, Denver; Capt. Mary F. Westhoven, Tripler Army Hospital, Hawaii; and Capt. Margaret Mahoney, Valley Forge Army Hospital, Phoenixville, Pa.

The tennis honors were also won by physical therapists. Capt. Rachel Adams from Brooke Army Hospital was presented the Col. Florence A. Blanchfield Tennis Trophy for her success in the singles contest. This was a first time presentation also and was made by Colonel Blanchfield, chief of the Army Nurse Corps during World War II, and now retired.

The doubles championship was shared by 1st Lt. Sheila McDonnell, Walter Reed Army Hospital, whose team mate was a WAC recruiting officer from Louisville, Kentucky.

The Blanchfield tennis trophy is also a perpetual one and will remain at the 4th Army Headquarters until a new winner claims it next year or a 4th Army player re-wins it.

## Fulbright Fellowship Award

Nancy Schmann, Physical Therapy Consultant, Division of Crippled Children's Services, State Department of Public Assistance, Charleston, West Virginia, has been granted a Fulbright Fellowship to teach physical therapy, with emphasis on treatment of the cerebral palsied, at the University of Rome, Italy for 1956-57. She will sail on the S. S. Constitution September 22 and will return to West Virginia, August 1, 1957.

## OVR Grant to Abilities, Inc.

How the severely disabled worker may effectively operate the complex modern machinery of the age of mechanization will be the subject of a two-year study by Abilities, Inc., a West Hempstead, New York, firm employing only disabled workers.

The study is being conducted as the result of a grant of $60,000 by the Office of Vocational Rehabilitation, Department of Health, Education, and Welfare. The grant was made to Human Resources Corporation, the research affiliate of Abilities, Inc.

The specific purposes of the study are to: (1) evaluate the problems encountered by persons disabled by paralysis, amputations, blindness, and other handicapping conditions in the operation of complex, modern machinery; (2) study possible adaptations of such machinery that may be required to permit its operation by persons with various types of disabilities; (3) develop methods of training disabled persons in the operation and maintenance of such machinery; and (4) establish "guide lines" and principles on these factors which may be used by industry generally.

Under the two-year study, the over 300 disabled persons employed at Abilities Inc. will have the opportunity to work with the latest machines in an actual production setting. Their efforts, problems, and results will be studied by a staff of specialists in industrial medicine, personnel, safety, labor, psychology, and rehabilitation.

As a part of the study, visual aids to help in the training of disabled persons in the operation of complex machinery will be prepared, and seminars, training programs, and conferences will be held with rehabilitation and industrial personnel.

## New Student Members

*Stanford University*

Rodney T. Coster
Lona L. Harless
Shirley Kelly
Richard Markson
Viola Neill
Gordon Pocock
Ada L. Ross

*University of Connecticut*

Roberta Gantert

*University of Michigan*

Mary Ann Biedenharn
Mary Bloemendal
Jane Conner
Marilyn Francis
Esther Heyt
Joan Klumpp
Carol Kritt
Carol Krohn
Pamelia Mills
Barbara Richardson
Barbara Ruhl
Lois Steinberger
Gayle Turner
Lenore Weathersby
Marilyn Wendel
Diane Williams

### *Marriages*

Dorothy Bradley, of Pittsburgh, Pa., now Mrs. Dorothy B. Zepfee, Pittsburgh.

Myra Garhart, of Greeley, Colo., to James Hurley, Sterling, Colo.

Erma Kelle, of Houston, Texas, to Philbert Lowery, Denver, Colo.

Ann E. Lowe, of Columbia, S. C., to E. C. Moncure, Jr., Norfolk, Va.

Sara Luria, of New Haven, Conn., to William Mag, New Haven.

Alice McWilliams, of New York, N. Y., now Mrs. Alice M. Carney, New York.

Carolyn L. Neff, of Wichita, Kansas, now Mrs. Carolyn N. Moebius, Minneapolis, Minn.

Joan Quinn, of Fall River, Mass., now Mrs. Joan Q. Sweetser, Nurenberg, Germany.

B. Katherine Rasmussen, of Grand Rapids, Mich., to Lee E. Horning, Flagstaff, Ariz.

Ann Rezzonico, of Cleveland, Ohio, to Frank L. Martin, Cleveland.

Jenny Roman, of Houston, Texas, now Mrs. Jenny R. Kamas, Houston.

Diana A. Wark, of Lancaster, Calif., now Mrs. Diana W. Gravatt, Lancaster.

# Physical Therapy Programs—1956

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS
OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree will accept high school graduates, *as well as transfer students.* Schools offering the 12 to 16 months program leading to a certificate will accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree or certificate have equal professional recognition and status. For specific information regarding each school's entrance requirements, tuition, and other fees, please write to the director indicated below. All students should investigate course requirements *early.*

| | *Degree* | *Certificate* |
|---|---|---|
| **CALIFORNIA** | | |
| Mrs. Mary J. Dodge<br>School of Physical Therapy<br>Childrens Hospital Society<br>4614 Sunset Boulevard<br>Los Angeles 27 | | † |
| Mr. R. William Berdan<br>School of Physical Therapy<br>College of Medical Evangelists<br>312 N. Boyle Avenue<br>Los Angeles 33 | † | † |
| Mrs. Margery L. Wagner<br>Curriculum in Physical Therapy<br>University of California<br>The Medical Center<br>San Francisco 22 | † | † |
| Miss Charlotte W. Anderson<br>Department of Physical Therapy<br>University of Southern California<br>University Park<br>Los Angeles 7 | † | † |
| Miss Lucille Daniels<br>Division of Physical Therapy<br>Stanford University<br>Stanford | † | † |
| **COLORADO** | | |
| Miss Dorothy Hoag<br>Curriculum in Physical Therapy<br>University of Colorado Medical School<br>Denver 20 | † | † |
| **CONNECTICUT** | | |
| Miss Frances Tappan<br>School of Physical Therapy<br>U 101 University of Connecticut<br>Storrs | † | |
| **ILLINOIS** | | |
| Miss Elizabeth C. Wood<br>Course in Physical Therapy<br>Northwestern University Medical School<br>303 East Chicago Avenue<br>Chicago 11 | † | † |
| **IOWA** | | |
| Mrs. Olive C. Farr<br>School of Physical Therapy<br>State University of Iowa<br>University Hospitals<br>Iowa City | | † |
| **KANSAS** | | |
| Mrs. Ruth G. Monteith<br>Section of Physical Therapy<br>University of Kansas Medical Center<br>Kansas City 3 | † | † |
| **LOUISIANA** | | |
| Miss Isadore Brown (Acting)<br>School of Physical Therapy<br>Charity Hospital of Louisiana<br>1532 Tulane Avenue<br>New Orleans 12 | | † |
| **MASSACHUSETTS** | | |
| Miss Shirley M. Cogland<br>*School of Physical Therapy<br>Simmons College-Children's Hospital<br>300 Longwood Avenue<br>Boston 15 | † | † |
| Miss Adelaide L. McGarrett<br>Curriculum in Physical Therapy<br>Sargent College, Boston University<br>6 Everett Street<br>Cambridge 38 | † | † |
| Miss Constance K. Greene<br>Curriculum in Physical Therapy<br>*Bouve-Boston School, Tufts College<br>Medford 55 | † | |
| **MICHIGAN** | | |
| Miss Virginia Wilson<br>Curriculum in Physical Therapy<br>University of Michigan<br>University Hospital<br>Ann Arbor | † | † |
| **MINNESOTA** | | |
| Mrs. Ruby M. Overmann<br>Course in Physical Therapy<br>University of Minnesota<br>860 Mayo Memorial Hospital<br>Minneapolis 14 | † | |
| Mr. Darrell D. Hunt<br>School of Physical Therapy<br>Mayo Clinic<br>Rochester | | † |

* Accepts women students only

| | Degree | Certificate |
|---|---|---|
| **MISSOURI** | | |
| Sr. M. Imelda, S.S.M.<br>Course in Physical Therapy<br>St. Louis University<br>1325 South Grand Boulevard<br>St. Louis 4 | † | |
| Miss Beatrice F. Schulz<br>Department of Physical Therapy<br>Washington University School of Medicine<br>660 So. Kingshighway Blvd.<br>St. Louis 10 | † | |
| **NEW YORK** | | |
| Miss Dorothy L. McLaughlin<br>*School of Physical Therapy<br>Albany Hospital-Russell Sage College<br>New Scotland Avenue<br>Albany 1 | † | † |
| Miss Mary E. Callahan<br>Courses for Physical Therapists<br>Columbia University<br>College of Physicians & Surgeons<br>630 West 168th Street<br>New York 32 | † | † |
| Miss Elizabeth C. Addoms<br>Physical Therapy Curriculum<br>School of Education, New York University<br>Washington Square East<br>New York 3 | † | † |
| Miss Mildred F. Heap<br>Program in Physical Therapy<br>University of Buffalo<br>2183 Main Street<br>Buffalo 14 | † | † |
| **NORTH CAROLINA** | | |
| Miss Helen Kaiser<br>Division of Physical Therapy<br>Box 3403, Duke Hospital<br>Durham | | † |
| **OHIO** | | |
| Mr. Robert D. Kruse<br>Course in Physical Therapy<br>Frank E. Bunts Educational Institute<br>2020 East 93rd Street<br>Cleveland 6 | | † |
| Miss Gladys G. Woods<br>Curriculum in Physical Therapy<br>Ohio State University<br>Columbus | † | † |
| **OKLAHOMA** | | |
| Miss Thelma Pedersen<br>School of Physical Therapy<br>University of Oklahoma, Medical Center<br>Oklahoma City 4 | † | † |

*Accepts women students only.

| | Degree | Certificate |
|---|---|---|
| **PENNSYLVANIA** | | |
| Miss Kathryn Kelley<br>Curriculum in Physical Therapy<br>D. T. Watson School of Physiatrics<br>Leetsdale | | † |
| Miss Dorothy E. Baethke<br>Division of Physical Therapy<br>University of Pennsylvania<br>1818 Lombard Street<br>Philadelphia 46 | † | † |
| **PUERTO RICO** (All classes given in Spanish) | | |
| Mrs. Lutgarda Vega de Cruz<br>School of Physical & Occupational Therapy<br>Professional Bldg., 8th floor<br>Stop 22, Santurce | | † |
| **TEXAS** | | |
| Miss Doris E. Porter<br>Grady Vaughn School of Physical Therapy<br>Baylor University Hospital<br>Dallas 1 | | † |
| Miss Ruby Decker<br>Curriculum for Physical Therapists<br>University of Texas, Medical Branch<br>Galveston | † | † |
| Mrs. Cecelia J. Lee<br>School of Physical Therapy<br>Hermann Hospital<br>Houston 25 | | † |
| **VIRGINIA** | | |
| Miss Susanne Hirt<br>School of Physical Therapy<br>Medical College of Virginia<br>Richmond 19 | † | |
| **WISCONSIN** | | |
| Miss Beth J. Phillips<br>Curriculum in Physical Therapy<br>School of Medicine<br>Marquette University<br>561 No. Fifteenth Street<br>Milwaukee 3 | † | |
| Miss Margaret Kohli<br>Course in Physical Therapy<br>University of Wisconsin<br>Madison 6 | † | † |
| **U. S. ARMY MEDICAL SERVICE** | | |
| *Physical Therapy Course<br>Medical Field Service School<br>Brooke Army Medical Center,<br>Fort Sam Houston, Texas and<br>Brooke, Letterman and Walter Reed<br>Army Hospitals<br>Write to: The Surgeon General<br>Department of the Army<br>Washington 25, D. C.<br>Att.: Personnel Division | | † |

**Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.**

# Abstracts

### Some Applications of the Functional Anatomy of the Ankle Joint.

J. Robert Close, J. BONE & JOINT SURG., 38-A: 761-781, July 1956

It was the purpose of this paper to investigate the anatomy and function of the ligamentous structures of the ankle and to correlate these findings with clinical observations given in case reports.

Certain motions at the syndesmosis of the ankle joint were demonstrated. As dorsiflexion of the ankle takes place, the malleoli separate in fairly regular increments, the greatest distance being approximately 1.5 millimeters. The articular surfaces of the malleoli remain closely applied to the sides of the talus throughout the range of ankle motion. The tibia rotates a few degrees medially about its long axis on the talus and the syndesmosis opens anteriorly. There is a relative lateral rotation of the fibula with respect to the tibia. Other motions at the syndesmosis, such as forward or backward displacement or translation of the fibula on its long axis, may occur but they have not yet been demonstrated convincingly.

The syndesmosis permits this flexibility because of the elasticity of its ligaments. The elasticity of these ligaments allows the intermalleolar distance to change and facilitates tibial and fibular rotation which is essential to normal function at the ankle joint. These motions contribute to the general springiness or elasticity of the system.

Progressive sectioning of the ligaments of the syndesmosis and the interosseous membrane leads to increasing backward mobility and increasing lateral rotation of the lateral malleolus. Loss of these structures, however, produces no significant widening of the medial or lateral clear spaces or increase of the intermalleolar distance. In order to produce widening of the mortice either the medial or the lateral group of ligaments, as well as the ligaments of the syndesmosis and the interosseous membrane, must be divided.

The most common fracture at the ankle is the spiral oblique fracture or lateral rotation fracture of the fibular malleolus. This is frequently associated with an increase in the medial clear space. When this increase is moderate, partial diastasis is present and there is injury to the deltoid ligament. Marked increase in the medial clear space indicates a complete tear of the deltoid ligament including both deep and superficial portions. Inability to reduce the medial clear space may mean that the deltoid ligament must be removed from the medial joint space and repaired.

### Immunogenicity, in Children, of Ultraviolet-Treated Poliomyelitis Vaccine.

Albert M. Wolf, et al., J.A.M.A., 161: 775-781, June 30, 1956

In order to determine whether primary immunization could be achieved with ultraviolet-irradiated poliomyelitis vaccine, a study was undertaken on young children in Morgan County, Illinois. This locale was chosen as one which had a low prevalence of poliomyelitis. Three hundred sixty-five children, 5 months to 17 years of age, were accepted for the study. All had very low levels of antibody and were presumed to be not "immunologically experienced."

The vaccines used were prepared from poliomyelitis virus propagated in monkey-kidney tissue culture containing Mahoney (type 1), MEF-1 (type 2) and Saukett (type 3) strains and were irradiated with ultraviolet. Safety tests were conducted according to the official procedures, and by inoculations of monkeys.

A variety of vaccines were used, singly and in groups, with varying results. Among the 330 children who received 3 doses of vaccines, the percentages found to have increases in titers after vaccination were as follows: 83.9 per cent to type 1, 93.2 per cent to type 2, and 82.7 per cent to type 3. This represents four-fold increase in titer, except for those children whose prevaccination titers were zero.

There was no noteworthy evidence of local or systemic reactions in any of the inoculated children. No evidence of active virus could be detected in feces on rectal swabs taken from 35 children. Laboratory studies of urine specimens showed them to be normal before and after immunization. There was no evidence of Rh sensitization being caused by the inoculations.

This study shows that vaccines prepared by ultraviolet irradiation, and found by rigorous technics to be free of active virus are still capable of producing good antibody levels in "immunologically inexperienced" children. Direct comparison shows that antibody levels attained with these vaccines are at least as good as those following use of formaldehyde solution-inactivated vaccines.

Very little correlation was found between results of potency tests in mice or monkeys and the capacity of a vaccine for increasing antibodies in children.

### Classification and Treatment of Temporomandibular Joint Problems.

James B. Costen, MICHIGAN STATE M. SOC. 55: 673-677, June 1956

Temporomandibular joint problems fall into three general categories: (1) those in which occlusal restoration permanently relieves pain symptoms, (2) those receiving direct treatment of the joint, and (3) those whose symptoms simulate origins about the joint, for which no treatment of any kind is indicated.

It is axiomatic that occlusal restoration should be achieved before or after all efforts directed to the joint itself.

The newest treatment to be used in joints of the body, weight bearing, fixed or movable, is intra-articular injections of hydrocortisone. Its use in the temporomandibular joint is feasible during, or after dental reconstruction, with excellent results. It is of greatest practical value, and although still classified as a palliative measure, no adverse reactions have been noted in any case.

Contracture of masticular muscles occurs during years of abnormal jaw action. After surgery on the temporomandibular joint, reeducation of the masticator muscle group may be done by: (1) voluntary myotonic exercise, (2) external elastic splinting to produce leverage within the jaws, or (3) intra-oral spring applications for forcible opening of the jaw.

The number of cases of masseter tremor is relatively small, as compared to the enormous group of mandibular joint neuralgias successfully treated. However, no restoration of occlusion has been of value in any case where masseter

tremor is present. If masseter tremor is observed, the prognosis after any treatment of joint or jaw position, is unequivocally poor.

### A Syndrome Simulating Encephalitis Affecting Children Recovering from Malnutrition.

E. Kahn and H. C. Falcke, J. PEDIAT., 49: 37-45, July 1956

A syndrome affecting children recovering from infantile malnutrition is discussed in this paper. The 8 patients presented in the study were 3 girls and 5 boys ranging in age from 7½ months to 3 years. All were from the Negro population of Johannesburg, South Africa.

The diet of these children prior to admission to the hospital had consisted mainly of corn. Characteristic signs of infantile malnutrition, or infantile pellagra are: retarded growth, edema, angular stomatitis, cheilosis, and a specific dermatitis. The normally black, thick and curly hair of the Negro child turned grayish-brown and became thin and straight. The skin changed from its usual dark brown to a light brownish color.

A diet consisting mainly or exclusively of cow's milk was usually sufficient to alleviate this nutritional deficiency within 3 or 4 weeks. However, a syndrome generally appearing from 6 days to several weeks after the initiation of a high protein diet was observed. This particular syndrome has been found only in those children recovering from states of malnutrition. Those who were not suffering from the deficiency or those who were still severely ill did not show any manifestations of neurological disturbance.

Salient features of this syndrome consist of coarse tremors, primarily of the upper extremities resembling those tremors of parkinsonism, and abnormally brisk tendon reflexes. There may also be muscular weakness, opisthotonos, excessive sweating, and insomnia. The lower jaw may sag and evidences of "cogwheel" or "lead pipe" rigidity may be noted in the extremities. Cerebrospinal fluid findings were normal in all cases reported here.

The exact etiology of this condition is obscure. However, the authors do identfy this syndrome with that of "acute cerebral tremors." Treatment is not defined, although it is stated that recovery usually takes place within a few weeks after onset.

### Functional Bracing of the Arm. Part I.

E. R. Schottstaedt and G. B. Robinson, J. BONE & JOINT SURG., 38-A: 477-499, June 1956

The principles of upper-extremity bracing are different from those of lower-extremity bracing. Bracing for the lower extremity is designed to give stability to the body and transport it from place to place. Leg braces, in order to accomplish this, must be sturdy enough to withstand heavy stress and strain. Functional bracing of the arm, however, is designed to replace or to facilitate normal upper-extremity function, primarily for light activities such as feeding, writing, and dressing. A summary of the authors' feelings in the matter of upper-extremity bracing follows.

The patient must have a source of power which can be harnessed. An analysis of the patient's needs should include special attention to the essential motions to be replaced (grasp, pronation, supination, etc.).

The brace must be light, comfortable to wear, and, if possible, should be constructed so that the patient can put it on or take it off by himself. The necessary working area for the desired activity should be known and properly planned for. Arm braces at the present stage of their development can replace many normal activities, but not all of them. They should be planned to accomplish specific tasks.

Arm braces must work from a stable base on the patient's body. Harnessing must supply a satisfactory range of motion and power for the activities desired. A brace must be relatively simple in operation so that its value is worth the patient's effort in making it function. They must be simple and sturdy enough so that frequent breakdowns do not occur and frequent adjustments are unnecessary.

Other important factors which must always be considered are:

(1) The patient must desire help and be willing to put up with minor inconveniences.

(2) Careful analysis of the patient's desires and potentials before final prescription of the brace will assure a better functioning appliance.

(3) Proper training in the use of the appliance should be given by a physical or occupational therapist.

(4) The prosthetist and manufacturer should work closely with the patient and the medical team to assure optimum functioning of the apparatus.

The authors feel that functional bracing should not supercede reconstructive surgery for the upper extremity. A reconstruction, if properly conceived and executed is always superior to the use of an external appliance; however, functional bracing can supplement surgical results.

### Psychiatric Considerations in the Adjustment of Patients with Poliomyelitis.

H. A. Robinson, J. E. Finesinger, and J. S. Bierman, NEW ENGLAND J. MED., 254: 975-980, May 24, 1956

This is a progress report of a study of a group of children with spinal poliomyelitis, all with some degree of lower-extremity involvement. The purpose of the study was to investigate some of the circumstances or factors that appear to contribute to the ways that patients and their families react and adjust themselves to the total experience of the disease and its sequelae. It is believed that this series represents fairly typical patients and families.

In the preliminary analysis of the many observations so far made, some fairly consistent patterns of behavior begin to emerge. Almost all the patients and the families have expressed beliefs in an extraordinary range of etiologic notions about poliomyelitis, despite the wide dissemination of medical information in the past few years. As a group these patients may be described as "good patients." They accept hospital routine well; they seem to adapt easily to the regimen of treatment and accept immobilization and other forms of restraint and inactivity with a certain contentment and submission. It appears that this behavior may be related to the guilt they feel for having done something that made them sick.

The study so far strongly suggests that the problems presented by poliomyelitis become clear only after the patient leaves the hospital. The role of the family is all-important in the patient's adjustment to a treatment situation, however, parental influence should be appraised only from the time of discharge. The attitudes of parents are seen as important predictive keys to the course of rehabilitation.

In this study, also, the role of the doctor appears to be quite different from that in some other medical

situations where the doctor plays the central therapeutic part in the experience of illness. In poliomyelitis the patient attaches greater significance to those people whom he sees most often. In this series the physician's role is definitely eclipsed by that of the physical therapist. A practical result of this perception is that the patient and members of his family cannot take full advantage of the wisdom and advice that the physician has to offer. It is hoped that as a result of this study, the patient may make fuller use of his resources — and these resources certainly include what the physician has to offer him — in his rehabilitation.

**Treatment of Low Back and Sciatic Pain by Injection of Hydrocortisone into Degenerated Intervertebral Discs.**

Henry L. Feffer, J. BONE & JOINT SURG., 38-A: 585-592, June 1956

The effect of local instillation of hydrocortisone into the acutely swollen intervertebral disk was tested by combining the injection with a nucleogram. The results, over a maximum follow-up period of 8 months are reported for the first 60 patients injected.

Nucleograms made of 55 patients demonstrated pathological lesions of the intervertebral disks. Thirty-seven patients (67 per cent) had rapid remission of symptoms after injection of hydrocortisone; 18 (33 per cent) failed to respond.

Surgical exploration of the involved disks has been performed in 16 of the 18 failures and the disks in all cases demonstrated irreversible changes.

These results suggest a method of not only rapidly interrupting the course of an acute intervertebral disk herniation but also, more significantly, of demonstrating early in the course of the episode which disks are destined to require surgical intervention in spite of adequate conservative care. In this way, much of the morbidity and economic loss characteristic of these cases could probably be averted.

It is hoped that an investigation of the fundamental causes of disk degeneration and of the mechanism of degeneration which underlie the empirical data presented in this paper will help fill in large gaps in the understanding of the pathogenesis and therapeutics of the degenerated and herniated intervertebral disk.

**Organic Behavior Disorder: Behavior Characteristics of Brain-Damaged Children.**

Doris H. Milman, AM. J. DIS. CHILD., 91: 521-528, June 1956

This is a report on a study of 22 brain-injured children. The study was undertaken for two reasons, (1) for the purpose of validating the theory that a clinically recognizable syndrome exists in brain-injured children with minimal involvement, and (2) to gather quantitative data with respect to the various components of the syndrome.

A neurological diagnosis was made in each case on the basis of history and clinical and laboratory findings. These cases were then analyzed according to etiology, medical findings, neurological findings, speech defects, intelligence quotients, psychological findings, reading ability, presenting complaints, behavior traits, personality traits, social adjustment, school record, parental attitudes, and results of treatment. The data clearly reaffirm the theory that minimal degrees of brain damage have clear-cut and recognizable consequences. The distinctive clinical features are impairment of fine coordination, visual-motor incoordination, anxiety, social ineptness, speech and reading disabilities, and school failure.

The author gives an interesting interpretation of this clinical syndrome in terms of the dynamic effects of the brain damage. These children encounter repeated defeats and frustrations in the acquisition of motor skills. They have difficulties in speech which limit their social effectiveness. Their behavior traits make them still more unacceptable and open to rebuff. Personality development in turn suffers from the consequences of repeated failures or a lack of satisfaction. The negative parental attitudes that these children evoke only adds to their feelings of frustration and failure.

Recommendations are made for clinical management, parental guidance, and education. Early recognition of the brain-injured child is a first requisite. An interpretation should be given to the parents of the nature of the disability and those areas in which added help and protection are needed. The parents may need help in order to give this added support and protection which the child requires. In addition the child may be benefited by the special clinical services of a speech therapist, a reading clinician, an occupational therapist, or a psychiatrist. Educational concepts need to be broadened so that these children receive the special attention they need, as the retarded, cerebral palsied, cardiac or deaf children now receive. Finally, vocational guidance must be available early in adolescence.

**Prognostic Studies in Children with Cerebral Palsy.**

Eric Denhoff, Raymond H. Holden, and Maurice L. Silver, J.A.M.A., 161: 781-784, June 30, 1956

A study was undertaken to determine some means of predicting which cerebral palsied children will be capable of making adequate adjustments to a life situation, and which will be cases for home or custodial care. It is now believed that 50 per cent of cerebral palsied children are mentally retarded, but that 50 per cent or more should be capable of useful and productive lives.

This study was undertaken on 50 children at a cerebral palsy day center in Providence, R. I. Of these, 70 per cent were classified as spastics, 14 per cent as athetoids, and the remainder had ataxia or rigidity. Pneumo-encephalography and psychological examinations were used in an attempt to predict future adjustments of the children.

Standard procedure for pneumoencephalography was used. Based on their x-ray findings, the neurosurgeon predicted the child's progress as poor, fair, or good, depending on the extent and location of the brain damage. A classification into 7 groups was devised as follows: 1) bilateral cerebral atrophy, 2) bilateral cortical atrophy, 3) unilateral cerebral atrophy, 4) unilateral cortical atrophy, 5) bilateral cerebral and cortical atrophy, 6) cerebellar atrophy, and 7) normal. Correlations were made between clinical diagnosis and pneumo-encephalographic classifications. There was a high correlation between these two.

The psychological tests administered were the Stanford Binet test (form L) to those able to respond on a 1½ year mental level, and the Vineland Social Maturity Scale for the intellectual level of infants. It has been found in cerebral palsied children that psychological tests are reliable if repeated on the same child. The psychologist predicted the child's future success as good if the intelligence quotient was 85 per cent or better, fair if between 60

and 85 per cent, and poor if below 60 per cent.

Two years after the studies of psychological tests and pneumo-encephalography, each child was assessed by the pediatrician as to whether the status was good, fair, or poor, based on the child's expected rate of development over the two-year period. These judgments of clinical progress were then correlated with the previous studies.

Results showed an over-all agreement of 81 per cent between psychological predictions and clinical progress and of 72 per cent agreement between pneumo-encephalographic predictions and clinical progress. Psychological test predictions are quite accurate in cases with average intellectual ability and mild handicap and in those with severe mental and physical handicaps, but are difficult and not so reliable in those between. In these cases pneumo-encephalograms were sometimes helpful. Those in groups 3 and 7 made good progress. These proved of value particularly in the diagnosis of seizures in the cases presented. It was realized that a two-year follow-up period in such a study was quite short, but it is hoped that further long-term research may be undertaken on the basis of results from this limited project.

**Glossopharyngeal Breathing as an Aid to Recovery from Paralytic Poliomyelitis.**

William D. Loeser, AM. J. M. SCI., 231: 487-493, May 1956

Glossopharyngeal breathing is of greater importance than may be apparent from ventilation measurements, since a significant psychological lift is given to the patient when he realizes that he no longer is entirely dependent upon mechanical aids.

The use of the term "frog breathing" is discussed together with the similarity between the breathing of amphibians and that of humans. A brief description of glossopharyngeal breathing is given. The steps in teaching are presented with many suggestions that have been helpful. Four cases with severe respiratory involvement are reported. Accompanying tables present ventilation studies.

With this voluntary mechanism, patients who require artificial respiration are able to have a significantly prolonged unassisted breathing time, increase in vital capacity, tidal volume, force of cough, and increased mobility of the chest cage. In addition to these effects on respiration, the ability to use glossopharyngeal breathing produces a marked change in psychological attitude. It has a great effect on morale, and has stimulated patients to make a greater effort toward their rehabilitation goals.

**Multiple Skeletal Lesions in Young Children Due to Trauma.**

Harry Bakwin, J. PEDIAT., 49: 7-15, July 1956

Infants and young children are highly prone to skeletal injury induced by trauma. Traumatic incidents, so often forgotten or suppressed by those responsible for the injury, may occur from mishandling of the child at birth or during play. Actual manifestations of the injury are pain, irritability, tenderness, and restricted motion. Large, bruised areas, so common in an older age group, are not frequently noted unless gross breaks occur. Therefore, these signs which are usually mild in nature are often overlooked and only accidentally found when roentgenograms are taken for other reasons.

The roentgen changes most commonly found are: subperiosteal ossification, avulsion of parts of the provisional zone of calcification, metaphyseal impacted and gross fractures, and epiphyseal displacements. Most frequently, there is cortical thickening as a result of periosteal separation and subperiosteal ossification.

The periosteum of young children is both highly vascular and easily stripped from the bone. Unless there has been an accompanying fracture, changes are not noted until 7 to 10 days afer injury. At this time, a new layer of cortical bone is seen and the involved bone becomes cloaked by a new layer of subperiosteal bone. At times, the periosteum may be torn and thrown into folds, thus producing irregular masses of new bone.

Traumatic skeletal changes have often been confused with those incurred by scurvy. The presence of an ossified subperiosteal hematoma is found in both. The characteristic bone changes of scurvy, however, can be differentiated from those brought about by trauma.

Rickets and bone syphilis have become rare diseases thus placing trauma as the most probable cause of skeletal change in the young child. Treatment is generally not necessary, and only occasionally will a permanent deformity result from the injury.

**Rehabilitation of the Hemiplegic Out-Patient.**

H. Droller, and G. Thornely, BRIT. J. PHYS. MED., 19: 135-139, June 1956.

Most of those patients who survive the period immediately following a stroke can be taught to walk and to talk; some may regain useful movements of the upper limb and a few may even return to full employment. This study is based on clinical material from the geriatric units at St. James's Hospital in Leeds. The rehabilitation of the hemiplegic patient is summed up as follows: (1) medical assessment as regards suitability of rehabilitation, and (2) the outlining of a program to the departments concerned.

The importance of not hindering any initial motivation is discussed along with the problem of explaining the need for long and wearisome training. The principles involved in making a rational prognosis are outlined. That patient with an outgoing, cheerful personality, with a high degree of skill and intelligence, and with the ability to adjust himself to his disability, has a better prognosis. All the workers who deal with these patients must realize the need for an understanding and positive approach to the emotional problems of the hemiplegic.

The more important objectives of rehabilitation are: (1) prevention of deformities and contractures, (2) retraining in walking, (3) retraining in the use of the upper extremity, (4) eradication of speech defects and retraining of speech, and (5) building up of power of concentration and constructive thought processes and the development of self-confidence. In the geriatric unit at Leeds the policy is to coordinate physical therapy with daily activities in the occupational department. Therefore, an outline of the occupational therapy aspect of treatment is given. The guiding principle appears to be the use of familiar objects and familiar movements to reestablish function. If complete retraining cannot be attained, self-help devices are introduced. Several suggestions for these are given.

An attempt is made to predict the length of time that patients need to attend the occupational therapy and

rehabilitation departments. From records at this hospital, it is estimated that one half of the patients will need a full three years' treatment or more and the others much less time.

### Observations on Phantom-Limb Phenomena.

William B. Haber, ARCH. NEUROL. & PSYCHIAT., 75: 624-636, June 1956

Loss of limb, in man, is often followed by an illusion—the conviction that the limb, or part of it, continues to be present. As early as 1872 Wier Mitchell coined the term "phantom limb" to designate this phenomenon; however, descriptions of this phenomenon can be found for centuries before this. Much of the recent literature on phantom limbs is concerned with theories about their origin. There are essentially three views on etiology: a peripheral view, a central view, and a mixed view. The peripheral theory ascribes phantom limbs to sensations arising from nerve endings in the stump. The central theory attributes the presence of phantom limbs to processes in the central nervous system which are considered more or less independent of sensory impulses from peripheral stimulation. The mixed theory, which invokes both peripheral and central factors, was introduced primarily to account for the fact that painful phantom or stump conditions are equally hard to control whether surgery is directed at peripheral or central structures. Evidence is presented which supports and which questions each of these theories.

It is felt that the lack of sufficient information on the natural history of phantoms, painful and painless, prevents sufficient proof of any one of these theories. Therefore, in the present investigation, a systematic survey was made of phantom phenomena in a group of arm amputees, with the purpose of considering whether these phenomena should be attributed to peripheral or central factors or both. The subjects were 24 men with unilateral above-elbow amputations. After determination of sensory thresholds on stump and sound limbs, each amputee was given a structured interview designed to elicit characteristics of his phantom sensations. At the end of the interview, each subject made a pencil drawing of his phantom limb, some of which are included in this paper.

Results of these interviews are discussed under prevalence and quality, dimensions of the phantom, shape of phantom and relative vividness of parts, subjective movement, persistence in phantom of position of limb at time of trauma, superadded sensations, and relation to prosthesis. In summary, all had illusions of continued presence of the lost limb. Data show that these phantom sensations are markedly similar despite differences in conditions before amputation. Sensations of tingling and "pins and needles" were reported most frequently; distal parts of the phantom were felt more vividly than proximal parts. Almost all of the amputees reported shrinkage and various degrees of telescoping. The gradual fading of the phantom took place in a definite sequence, the proximal portions vanishing before distal ones. Where illusory movement of phantom parts was reported, motions of flexors were mentioned more often than those of extensors. The present observations, together with earlier ones, are interpreted as supporting a central theory of the origin of phantom limb.

### Physiological Approach to Ambulation in Paraplegia.

Edward E. Gordon, J.A.M.A., 161: 686-688, June 23, 1956

The intensity of effort involved in crutch walking was measured in 11 patients who represented 3 types of paraplegia. The measurements concerned the rate of oxygen consumption, the amount of oxygen debt, and the concentration of lactic acid in the blood. Data from normally ambulant persons were obtained for comparison.

It was evident that lowered capacity for physical activity roughly paralleled the extent of neurological deficit. When this was severe the metabolic price for ambulation was prohibitive and rendered ambulation as a routine part of the rehabilitation program unfeasible. Judging from the capacity for continued muscular work in some patients, a swing-through gait on a continuous basis produced exhaustion analogous to that of a normal person performing a 440-yard run.

Paraplegic patients for full scale ambulation must be selected on the basis of anatomic involvement: those with large trunk deficits will probably fail; those with involvement of only the trunk flexors or with cord lesions below the twelfth thoracic or the first lumbar vertebrae will probably succeed. Age also reduces the work tolerance. This restriction does not preclude standing and walking short distances merely as an exercise to maintain physiological balance and carrying out self-care activities.

For the severely involved, it would be more constructive to devote the bulk of the time to vocational training in a wheel chair rather than to demand prolonged heroic efforts in a fruitless attempt at sustained ambulation.

### Raynaud's Disease Studied by Hypnosis

Albert Norris and Paul Huston, DIS. NERVOUS SYSTEM, 17: 163-165, May 1956

Raynaud's disease is a functional vasospastic disorder in which cold and emotional disturbances cause constriction of the arterioles. Exacerbations are seen with a decrease in skin temperature at the fingertips and it often results in gangrene. Scleroderma is frequently an accompanying feature.

The personality of patients with Raynaud's disease is basically one of dependency and the onset of the disease often follows loss of a loved one. The patient then blames himself and the disease may result, representing self-sacrifice and partial destruction. Psychotherapy with vasospastic syndromes has been used with some degree of success.

The case history of a 27 year old female with Raynaud's disease is presented in the paper. Her first illness began in 1943, two years after the death of her father. She experienced periodic blanching of the fingers, hands, and feet with vasospasm. In 1953 temporary relief of symptoms was obtained with cortisone and ACTH. The patient was intelligent and ambitious but dependent first upon the father, then the stepfather and later, her husband.

The case reported here was subjected to treatment by hypnosis for several years. She was an excellent subject, regressing and reliving her early childhood experiences with ease. Under hypnosis, no vasospasm or significant changes in skin color and temperature were demonstrated. But by employing this procedure, some of the possible underlying psychological factors affecting her disease were uncovered. She

relived emotional experiences which had occurred prior to an exacerbation and under hypnosis had symptoms of numbness, burning, and pain. She expressed feeling of resentment for her dependency on others.

After extensive therapy the patient returned home and later reported she had been better than at any time since the onset of her illness. Some time after her discharge the patient's husband became ill and thus was dependent upon her. She attributed the continued remission of the disease to this increase in her responsibilities.

**Effect of Oxygen on Exercise Ability in Chronic Respiratory Insufficiency.**

J. E. Cotes and J. C. Gilson, LANCET, (No. 6928), 872-876, June 9, 1956

With improved treatment of acute respiratory conditions, more patients survive but they continue to have the problem of shortness of breath upon the slightest exertion. Increased oxygen supply may increase their exercise tolerance.

Portable oxygen apparatus was assessed for its practical value and usefulness in the symptomatic treatment of patients with chronic respiratory failure. The apparatus used consisted of small, lightweight steel cylinders containing 50-120 litres of oxygen and, when equipped with valves and tubes, weighed from 2½ to 3½ pounds.

Twenty-nine patients with advanced bronchitis or emphysema were used in this study. Breathlessness prevented them from walking more than a few yards at a time. Their exercise performance was tested on a treadmill. Maximum walking time was recorded as the patient received either air or oxygen from the test apparatus through a humidifier to the mouthpiece or mask. The patient was never aware of the composition of the gases that he was inhaling.

The results indicated that breathing oxygen increased the exercise ability in 22 of 29 patients. Detailed studies of 6 of the patients showed that 30 per cent oxygen in the inspired air was not greatly inferior to 50 per cent and 100 per cent oxygen mixtures in increasing exercise ability.

Four of the patients were outfitted with their own portable oxygen masks, incorporating a non-return valve to prevent rebreathing. This apparatus enabled them to move about their homes with more freedom.

**Stripping of Varicose Veins With a Double Stripper**

Ray S. Greco and R. E. Flood, W. VIRGINIA M. J., 52: 167-168, June 1956

The surgical management of varicose veins of the lower extremities has been increasing in popularity and success since its beginning in the early 1900's. One should strive for high ligation of the greater saphenous vein and its tributaries and through stripping of the involved varicosities. Improved surgical technic and use of antibiotics have made the technic more successful with minimal scarring.

First the 3 main tributaries of the saphenous vein are clamped, cut, and ligated. The second phase consists of two parts: (1) the successful passage of the stripper and (2) the thorough stripping of the involved vein. A double Emerson stripper with newly devised coupling is advocated. Usually the flexible stripper is passed from the area of the medial malleolus upward. If this meets resistance it may be passed from the groin area downward. Sometimes a cardiac catheter is used for forceful dilatation of the vein with saline solution. With all methods, tearing of the vein should be avoided.

## Our Abstractors for October

Abstracts in this issue were prepared with the assistance of—

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# Book Reviews . . . . .

**Scientific Writing.** *By Meta Riley Emberger and Marian Ross Hall. General Editing by W. Earl Britton. Cloth; price $5.00. Pp. 468; illus. Harcourt, Brace and Co., New York 1955.*

The authors of this book have intended it for use both as a textbook and as a reference source. It has been designed to facilitate the solution of technical writing problems for those in industry and science as well as those in the professions.

Factual writing in areas outside the natural sciences may in a broad sense be termed scientific when it submits to the disciplines of method, objectivity, accuracy, clarity, and precision. In communicating ideas to fellow-specialists, to administrators, policy-makers, boards, and the general public, the technologist, industrialist, and the medical person are all faced with problems of communication. With the increasing volume of technical reports today, scientific writing must be the result of discernment, analysis, and discrimination.

This text divides itself into three main parts. The first part places emphasis on the intellectual activity which must precede composition; the second portion concerns itself with the problems of communication; and the latter part of the book treats the elements of structure of various types of papers.

The introductory chapters, one and two, present concepts fundamental in scientific method and research and their follow-through into scientific writing. The concept of the problem is discussed separately in the second chapter. Chapters three to six follow the sequence of an investigative project: the definition of terminology and the collection, analysis, and interpretation of data. Chapters seven, eight, and nine deal with problems of composition such as style and exposition. In chapters ten through thirteen, various types of papers are treated: the research paper which is considered as an introduction to the different types of long scientific papers, short and long reports, abstracts, papers of device and process, case histories, and book reviews. The conventional standards of format of manuscript, title page, table of contents, subheadings, quotations and illustrations are treated in detail. Practices and variations in documentation in various kinds of journals are described. Types of illustration, and their handling are discussed only briefly in the last chapter.

The text is liberally sprinkled with examples and each chapter concludes with a set of study suggestions so that a student may apply what he is learning to his own writing. Two appendices, one on readings and word lists and the other on business letters are quite complete.

This book is well outlined and

material contained therein is easily found, therefore adding to its value as a ready source of reference. It would make a valuable adjunct to a reference library or to the personal library of persons who write reports and scientific papers with regularity.

**Human Development and Learning.** *By Lester D. Crow, Ph.D.; and Alice Crow, Ph.D., Brooklyn College Dept. of Education. Cloth; price $5.50. Pp. 578; illus. American Book Company, New York 1956.*

With *Human Development and Learning* Lester D. and Alice Crow have added another to their long list of publications in the fields of education and psychology. As the title indicates, they have attempted in this volume to cover a vast and complex subject.

Human development is traced through the first two decades of life with stress on the physical, mental, emotional, personal and social growth of the individual. On the subject of learning, the authors bring out the implications of differences in ability to learn, attitudes toward learning, and behavior in learning situations. They discuss how these factors are related to the teacher's job of helping students to achieve success and personal and social adjustment. The chapter on classroom discipline is particularly pertinent and enlightening.

Included in the treatment of the "learning process" are the various theories and principles of learning expounded throughout history—from Thorndike and Pavlov to Dewey to the modern combination of them all. Also the authors cover in detail the steps of learning: the acquiring of skills, language development, the evolving of thinking and problem-solving technics, and the retention of learning. Uses of various methods and tests for evaluating pupils and their progress are suggested and the purposes and functions of guidance counseling services in schools are discussed.

Finally, the role of the teacher in education is presented. Under this topic are brought up the problems concerning teacher preparation and adjustment and also teacher relationships with pupils, co-workers and supervisors. The importance of allowing only persons suited to teaching to enter the profession is repeatedly emphasized.

The aims of the authors are 1) to present the sequence of child and adolescent development, 2) to interpret the psychological factors in their behavior, and 3) to alert teachers to the modern child's problems and the educator's professional responsibilities. Questions for thought or discussion at the end of each chapter and the listings of appropriate films and reference books are supplementary teacher aids. Into the comprehensive and scientific treatment of their subject, Lester and Alice Crow have interpolated innumerable real-life incidents, specific examples, charts, and case histories. These relieve the textual quality of the writing and enliven what would otherwise be a dull parade of facts and theories. In summary, *Human Development and Learning* is a complete and up-to-date text on educational psychology, useful especially to teachers-in-training or to teachers desiring a modern refresher course in this field.

**The Postural Complex: Observations as to Cause, Diagnosis and Treatment.** *By Laurence Jones, M.D., Visiting Orthopedist, Midway Hospital, Los Angeles, Calif.; Former Chief Orthopedist, Menorah Hospital, Kansas City, Missouri. Cloth; price $9.75. Pp. 156; illus. Charles C Thomas, Springfield, Ill. 1955.*

For the past 15 years, the author has studied the role played by deviations in foot posture in the production of total postural deviations and pain. He presents the premise that human evolutionary trend is toward a more rigid foot, and illustrates this by analyzing the structure and respective functions of the upper and lower extremities of various animals in the evolutionary scale. A mobile foot is not ideal for full weight bearing, and can produce certain painful conditions.

Another incomplete evolutionary adaptation is the short spinal cord in the long vertebral column. Any deviations of the normal curves of the spine can put added stress on the already poorly spaced cord and nerve roots and result in painful neuralgias.

A postural complex is described, consisting of inward roll of the foot and ankle, producing internal rotation of the leg and thigh, producing pelvic rotation on the hip with a forward thrust of the iliac crest and an increase in lumbar lordosis. An outward roll of the foot to straight weight bearing, produces a reversal and correction of the complex. Radiographic technics used by the author for demonstration of pelvic tilt and leg length differences are explained.

The fabrication of corrective shoes is discussed in great detail. This includes the construction of plastic shells to make the heel and arch rigid, wedges, heel elevations, long arch and anterior arch supports, and their precise placement in the shoes. The corrected shoe should hold the foot in straight weight bearing (controlling inward roll) and should bring the patella into mid-line.

Five hundred patients with chronic low back pain, which had proved resistant to conventional forms of treatment, were fitted with rigid corrective shoes. These cases were analyzed according to age, sex, duration, symptoms, previous diagnosis, and results. Of these patients 85 per cent were reported to have received "substantial benefit." This latter term is used because many patients are benefited only so long as fixed postural correction is continuously maintained. Eleven case histories are presented in detail.

The average reader will not be interested in developing facilities for the fabrication of corrective shoes; therefore, some of the detail of the book may not interest him. Some readers may feel that there is too much reiteration, but such serves to emphasize the postural principle discussed. Every physical therapist should understand the postural complex presented here, not only because of its role in chronic low back pain and neuralgias, but also its occurrence as a complicating factor in paralytic conditions. The book is profusely illustrated.

**Supervision of Nursing Service Personnel.** *By Cecilia A. Perrodin, R.N., B.Ed., M.S. Formerly Assistant Professor of Nursing Education, De Paul University, Chicago. Cloth; price $6.00. Pp. 622. Macmillan Co., New York 1954.*

The many problems that confront the nursing supervisor are well high overwhelming. The author of this book clearly demonstrates how the nursing supervisor can inspire activities that lead to solutions of problems. Effective supervision can be the unifying force in nursing that will provide a channel for good human relations and communications which in turn will open the way to solutions of problems. Paramount

among the responsibilities of the nursing supervisor is that of the welfare and satisfaction of the patient. This book shows how through adequate, sympathetic supervision a unity of purpose among nursing personnel can be achieved and satisfying work efforts inspired. The book has numerous examples of precise definitions and clear explanations that will help any one in nursing supervision to understand good leadership and to sell a good quality of nursing. In all of the descriptions of the various functions of the supervisor emphasis is laid upon her role as the harmonizer among the people affected by her supervision.

The author's experiences in all phases of nursing supervision over the years have placed her in an eminent position to speak with authority. Her keen observation, understanding of good human relations, and faculty of clear and forceful expression are apparent early in the book and continue throughout the 34 chapters.

There is a consistent pattern of logical presentation of content matter that makes the volume useful as a textbook for students and as a guide for teachers and supervisors. The effort to present content that is peculiar to supervision is well rewarded. The reader perceives that this is an authoritative work. The text adds vividness to usual nursing situations and realism to problems in human relations. Emphasis is placed upon the human factors in supervision. Examples of practical procedures in supervision emerge from well phrased sections on Nature and Meaning of Supervision; Basic Concepts of Importance in Supervision; Principles of Supervision and Their Relation to Supervisory Practices; Analysis and Organization of Supervisory Activities, Requirements and Qualifications; Tools of Supervision; Contributions of Education, Business and Industry to Supervision; The Supervisory Program; and The Fruits of Supervision.

The generous use of provocative symbols, charts, outlines, and reference lists add to the value of the text, providing a wealth of material for group discussions and for quick reference.

This study of supervision is timely and important in this age of increasing need for understanding and using the principles of effective supervision. The author is to be congratulated on her accomplishment in this book where one finds a significant contribution to the body of knowledge that belongs to nursing. The book should make considerable headway in arousing administrators, teachers and supervisors to an acceptance of the idea that this is an age of supervision in nursing service.

**How To Free Yourself From Nervous Tension.** *By Dr. Samuel W. Gutwirth. Cloth; price $3.95. Pp. 200; illus. Henry Regnery Co., Chicago 1955.*

Nervous tension is so prevalent and yet so difficult to correct that it is good to find a book on this subject written in a simple and understandable manner. This is intended for the lay public and it is written so that the average layman will be able to follow the technics easily.

This book on Progressive Relaxation is based on the personal experiences of the author. Many years ago he developed a crippling spinal disability which resulted in marked pain and nervous tension as the disease became progressively worse. Under the instruction of Dr. Edmund Jacobson, now the director at the Laboratory for Clinical Physiology, and founder of the therapy of Progressive Relaxation, he derived such benefits from relaxation that this book has been written to help others to live healthier and more enjoyable lives.

The author emphasizes the fact that the person suffering from nervous tension must consult his physician first. Only after it has been determined that tension is the primary factor should the procedures outlined in the text be followed. The latter are so written and explained that it is possible through self instruction for the person to reeducate his nervous system.

Taking the parts of the body individually, Dr. Gutwirth explains how to recognize tension and then how to release it. Since much tension occurs while we are active, relaxation procedures are given for both the recumbent and the sitting positions. Simple drawings illustrate the usual direction of tension and help the reader to understand how to release it.

Through his lectures and clinics Dr. Gutwirth has become aware of the usual questions in the minds of his audience. He therefore has included a question and answer portion which will be of benefit to the reader.

This book can be recommended to patients suffering from tension as one that will give them help in solving a difficult problem.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

## Our Book Reviewers for October

**Helen J. Hislop,** Staff member, Division of Professional Education, National Foundation for Infantile Paralysis, New York, N. Y.: Assistant Editor, *Physical Therapy Review.*

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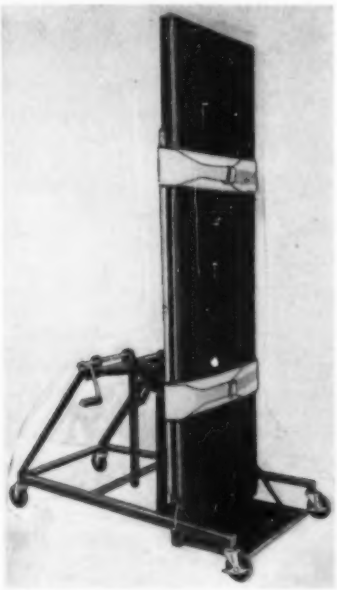
# What's New . . . . . .

### 170. New Popular Priced Tilt Table



This table is tilted by a hand crank with minimum effort. It tilts from 0 to 90 degrees and locks automatically at any desired angle. A protractor indicates degree of tilt.

The table is 24 inches wide by 78 inches long and is comfortably upholstered. Two heavy restrainer straps hold patient securely in place. Footboard has nonslip surface. Height is 32 inches for easy transfer to and from bed or stretcher. It has large 4 inch ball-bearing swivel casters (two with step-on brakes). Over-all width of 29 inches permits easy passage through doorways and corridors.

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**For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review.*

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Handi-Drive makes driving possible for persons who are unable to use their lower extremities. The manufacturer states that this perfectly designed unit eliminates the need for use of the foot brake, clutch, or floor accelerator. The foot controls are entirely free of obstruction so that the car can be operated in normal fashion. The new dual control lever is interchangeable from right to left hand control.

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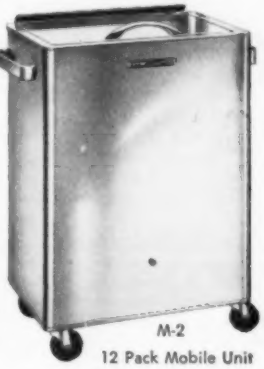

M-2

12 Pack Mobile Unit

# *Classified* WANT-ADS

WANTED: QUALIFIED physical therapist for fully equipped department in general hospital and clinic. Contact Walter H. Mende, Administrator, Holyoke Hospital, Holyoke, Mass.

QUALIFIED PHYSICAL THERAPIST: Experienced in rehabilitation technics to give treatment and instruct home bound patients; to teach and supervise visiting nurses in appropriate procedures. New position. Salary commensurate with experience, regular increases. Generous paid vacation, sick leave, legal holidays, 40-hour week, group hospitalization, retirement benefits. Write Anna C. Gring, Executive Director, Visiting Nurse Association, 87 Washington Avenue, Bridgeport 6, Connecticut.

WANTED: TWO PHYSICAL THERAPISTS, 40-hr. wk. Liberal personnel policies. Salary open. Wonderful location and climate in Rocky Mountain Area. Fully approved general hospital. Apply Manager, Memorial Hospital, Cheyenne, Wyoming.

PHYSICAL THERAPIST: Expanding department in medical school-teaching hospital. General work with in- and outpatients. Salary commensurate with training and experience. Annual paid vacation, holidays, and sick leave. Experience not necessary. Write Edith M. Vail, Phys. Ther. Dept., N. C. Baptist Hospital, Bowman Gray School of Medicine, Winston Salem, N. C.

PHYSICAL THERAPIST: Permanent staff position for well equipped department in modern 200 bed general hospital. Forty-hour week, liberal sick leave, vacation and holiday policies. Write: Personnel Department, Marymount Hospital, Garfield Heights 25, Ohio.

FEMALE, fully QUALIFIED physical therapist to work full time in orthopaedic surgeon's office. Dr. Peter J. Dulligan, 773 Teaneck Road, Teaneck, N. J.

REHABILITATION SERVICES, INC., 200 Court Street, Binghamton, New York, will have staff physical therapist position available after Sept. 3, 1956. Modern facilities, outpatient service, established personnel policies, with salary dependent on qualifications. Inquire: Ward A. Merrell, Administrator, Rehabilitation Services, Inc.

STAFF POSITION qualified physical therapist, fully approved 195-bed general hospital, expanding rehabilitation facilities. Salary open with annual increments; 40-hour week; 3 weeks' vacation; paid sick leave. Apply Personnel Office, Blessing Hospital, Quincy, Illinois.

FULLY APPROVED 400-bed general hospital desires an experienced physical therapist to initiate a Department of Physical Therapy and Rehabilitation. Salary $450 monthly, liberal personnel policies. Apply Administrator, Providence Hospital, 2500 W. Grand Blvd., Detroit 8, Michigan.

Cerebral Palsy Therapists

For work with cerebral palsy children attending clinics and school in Alameda County. Salary $394-$484. Liberal vacation, sick leave and retirement benefits. Requirements: OCCUPATIONAL THERAPIST—registration with National Registry and one year of supervised experience after recognized course. PHYSICAL THERAPIST—legal requirements for practice in California and one year supervised experience after graduation from approved school. Apply: James C. Malcolm, M.D., M.P.H., Director, Alameda County Health Dept., 15000 Foothill Blvd., San Leandro, Calif.

IOWA'S LARGEST PRIVATE HOSPITAL now planning expansion of facilities needs qualified physical therapist. Institution includes 100-bed Raymond Blank Memorial Hospital for Children. Post-polio cases, in- and outpatient work. Competent professional staff and assistants, excellent working relationships. Apply Anthony D. Damiani, Personnel Director, Iowa Methodist Hospital, Des Moines, Iowa.

QUALIFIED P. T. to set up a new department in an outpatient rehabilitation center. Work primarily with pre-school children. Salary open. One month paid vacation. Write H. B. Williams, Elkhart County Crippled Children's Society, Inc., 702 Williams St., Elkhart, Indiana.

QUALIFIED PHYSICAL THERAPIST—Well established PM & R unit serving 312-bed general hospital. New England college town. Liberal personnel policies. Good starting salary. Semiannual reviews. Living quarters optional. Laundry furnished. Write Mr. George Stoddard, Personnel Director, Mary Hitchcock Memorial Hospital, Hanover, New Hampshire.

## *Classified* WANT-ADS

**RATES**

The rate per insertion is $1.00 per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

**ALL WANT-ADS MUST BE PAID FOR IN ADVANCE.** Make checks or money orders payable to the American Physical Therapy Association.

**Closing date for copy and cancellations is two months preceding publication date.**

Institutions or physical therapists who do not wish their identity known may arrange for Blind Ad Code No. All such want-ads must include the following which will be counted as 2 lines:

Address replies to _____ care of **The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

**IMPORTANT**

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

# *Classified* WANT-ADS

Immediate opening for qualified physical therapist, male or female, for well equipped department in completely air-conditioned, modern rehabilitation center and hospital; medically supervised; 40 hours per week; paid vacation; sick leave; legal holidays; minimal starting salary $325. Apply Richard E. Freeberg, Supervisor, Rehabilitation Services, Hedgecroft Hospital, Houston, Texas.

REHABILITATION and general medical hospital desires services of additional physical therapists, male or female. Near New Haven, close to Hartford and Waterbury. Fully equipped, air-conditioned physical therapy department. Policies and consultations by Dr. Thomas Hines, Physiatrist-in-Chief, Yale University, Department of Physical Medicine. Physical Therapist-in-Charge, Miss Charlotte Kinney, B.S., R.P.T. Salary open. Request personal interview. Address: Director, Box 440, Wallingford, Conn.

PHYSICAL THERAPIST WANTED: To take charge of physical therapy department in 190-bed general hospital. Salary $4,200 to $4,800, regular increases on merit basis. Three weeks' vacation, holidays and sick leave, 40-hour week. Write P. J. Moch, care of Physical Therapy Department, St. Mary's Hospital, Quincy, Illinois.

WANTED: Physical therapist for suburban Philadelphia public health nursing agency to give consultant services to staff of 25 nurses and direct services to homebound patients. Salary dependent upon experience. Social Security, retirement, 40-hour 5-day week. Liberal personnel policies. Position open now. Apply Executive Director, Community Nursing Service, Delaware County, 60 S. Lansdowne Ave., Lansdowne, Pa.

PHYSICAL THERAPIST, qualified, for 334-bed general hospital. Five-day, 40-hour week, paid vacation, sick leave, regular salary increases. Convenient location, excellent working conditions. Apply Personnel Department, Lakewood Hospital, Lakewood 7, Ohio.

LIVE IN NEW YORK! RPT, $3900-4500, 5-day week, 4 weeks' vacation, 12 days' sick leave, noon meal, relaxed atmosphere, challenging case load. Orthopedically disabled adults. Room and board optional. Contact: Mr. D. Wiesen, Ass't. Exec. Dir.; Beth Abraham, 612 Allerton Ave., Bronx 67, New York.

PHYSICAL THERAPISTS for CALIFORNIA STATE HOSPITALS. Positions open now for men at California Veterans Home in Napa County; for men and women at State mental hospitals in various locations. Start at $358. Promotional opportunities up to $505. Requires graduation from approved physical therapy school and eligibility for California license or registration. Apply California State Personnel Board, 801 Capitol Avenue, Sacramento.

QUALIFIED PHYSICAL THERAPISTS for immediate placement in established Crippled Children's Hospital and rapidly growing comprehensive Rehabilitation Center treating wide variety of patients. Well equipped therapy department with pools and adequate space. Employee benefits. Maintenance if desired. Write: Jack E. Pearson, Morris Memorial Hospital and Rehabilitation Center, Milton, West Virginia.

STAFF POSITION for QUALIFIED physical therapist for expanding Southern California medical group; California registration required; good starting salary with periodic increments; 40-hour week; overtime; 15 days sick leave; health plan and other benefits. For further information, write Doris M. Beswick, Permanente Medical Group, 130 N. La Cienega, Los Angeles 48, California.

EXCELLENT opportunities for research-minded therapists interested in the field of prosthetics, in laboratory research and in field testing programs. Inservice training given prior to assumption of responsibilities. Field position requires considerable travel. Congenial working conditions and salary commensurate with qualifications and experience. Please send resumes to Dr. Sidney Fishman, Project Director, Prosthetic Devices Study, College of Engineering, New York University, 252 7th Ave., New York, N. Y.

WANTED: Physical therapist (male or female) licensed or eligible for license in Penna. for expanding 900-bed home for chronically ill and aged. Salary starts at $3,583 with yearly increments to $4,108—37½-hour week; 20 days sick leave; 10 days vacation; 13 holidays; pension plan. Write: R. J. Groller, Sup't. Riverview, Dept. of Public Welfare, 7979 State Road, Phila. 36, Penna.

LARGE NEW MACON HOSPITAL HAS OPENING for physical therapist: An opportunity to head physical therapy department in one of the modern, and well equipped hospitals in the South. Generous personnel policies, hospitalization insurance, and the usual vacation and sick leave privileges; salary open. Contact Personnel Office, Macon Hospital, Macon, Georgia.

CHIEF PHYSICAL THERAPIST at the Beekman Downtown Hospital—acute general hospital. Physiatrist in charge. Minimum salary $4,600. STAFF THERAPIST —minimum $3,600. Five-day, 40-hour week. Apply Dr. B. Grynbaum, 170 William Street, New York, N. Y.

POSITION AVAILABLE for a qualified physical therapist for generalized program and home visiting, car furnished, good salary, liberal vacation and sick leave policies. Apply Miss Ethel Turner, Director, The Instructive Visiting Nurse Association, 1601 Bolton Street, Baltimore 17, Maryland.

(continued on next page)

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# *Classified* WANT-ADS

Qualified physical therapist: For new 300-bed general hospital, completely air conditioned, with one and two bedroom units. Forty-four hours per week. Progressive personnel policies. Salary open. Apply Personnel Officer, Memorial Hospital of Chatham County, Savannah, Georgia.

WANTED IMMEDIATELY: Opening in physical therapy department with the Northeast Colorado Health Department. Excellent opportunity for advancement, very modern department, has outpatient clinic, superior salary, liberal vacation, five-day week, working hours 8:00 to 4:30, all legal and state holidays off. Will have supervision. Prefer male therapist. Apply to James B. Harrigan, District Physical Therapist, Northeast Colorado Health Department, 700 Columbine, Sterling, Colorado.

A STAFF PHYSICAL THERAPIST for rapidly expanding rehabilitation center, either experienced or inexperienced therapist acceptable. Excellent working conditions, 37½-hour work week, good pay, good personnel policies, good medical supervision. Crossroads Rehabilitation Center moved into new building May 1. Wonderful opportunity for staff growth and promotion. Contact Roy E. Patton, Executive Director, 3001 North Jersey Street, Indianapolis, Indiana.

PHYSICAL THERAPISTS. Unusual opportunity for creative work in 1,172-bed general teaching hospital. Civil Service Classification and benefits. Starting salary $3,600-$4,500, depending on experience. Write: Dr. Josephine J. Buchanan, Chief, Dept. of Physical Medicine, D. C. Gen. Hosp., Washington, D. C.

PHYSICAL THERAPIST for 500-bed general hospital. All types of cases—mostly acute, short term. However, no polio or C. P. Recent graduate acceptable. Inquire: Akron General Hospital, Akron, Ohio.

POSITIONS AVAILABLE for qualified physical therapists for active rehabilitation department in modern 500-bed, chronic disease hospital. Salary open. Four weeks' vacation. Sick benefits. Lunches. Apply Superintendent, St. Barnabas Hospital, New York 57, N. Y.

PHYSICAL THERAPIST: Staff position with varied duties; 398-bed acute general hospital with expansion program underway. Opportunity for advancement in planned rehabilitation unit. Liberal personnel policies. Address replies to Box 18, care of the Physical Therapy Review, New York 19, New York.

OPENING in CEREBRAL PALSY SCHOOL in new air-conditioned building. Very good salary and liberal personnel policies. Experience in cerebral palsy desirable. Write: Mrs. A. M. Inman, Director, 1601 Gatewood Ave., Greensboro, N. C.

POSITIONS AVAILABLE DALLAS: Expanding physical therapy department treating in- and outpatients including general, rehabilitation, orthopedic and neurosurgical cases. Excellent working facilities, air conditioning, new equipment. Under direction of physiatrist. Higher salary for experienced physical therapist. Opportunity for working with student program. Must be graduate of approved school. Contact Mr. Jack C. Hays, Chief Physical Therapist, Baylor University Hospital, 3500 Gaston Avenue, Dallas 10, Texas.

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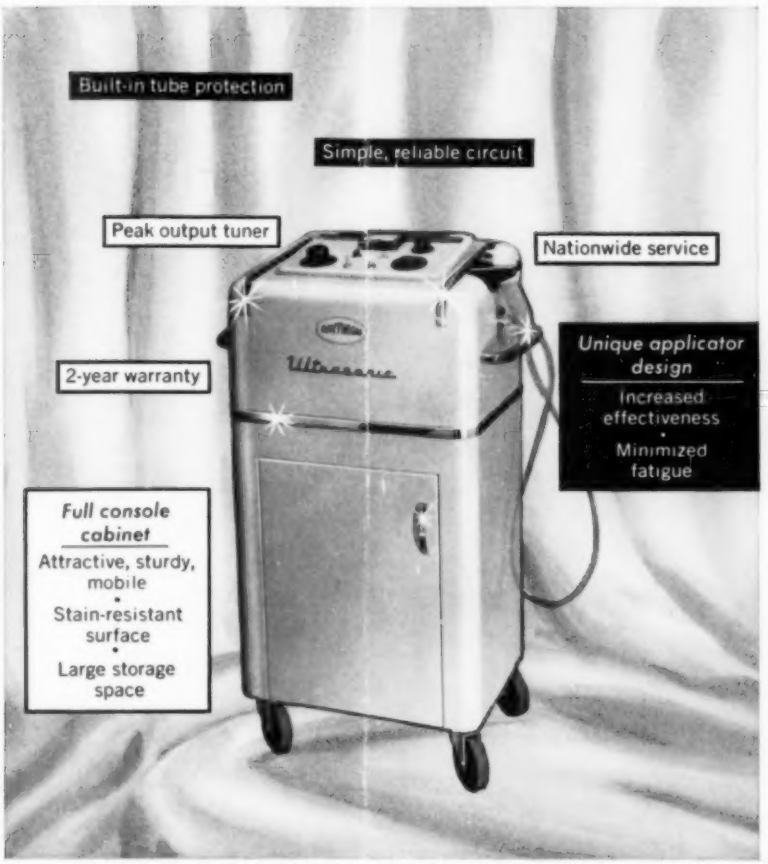


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